

# SOAP

*and*

# SANITARY CHEMICALS

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**G**LYCERINE sales for the first quarter of 1947 would indicate that the total American production of soaps for the same quarter was roughly one billion pounds. But soap sales were about twenty per cent lower than this indicated production figure, according to the figures of the Association of American Soap and Glycerine Producers. In other words, twenty per cent more soap was apparently manufactured during the first quarter of 1947 than was sold during that period. The reasons for this may be several, the most important of which was probably the high level of soap prices generally which held all soap buying, industrial as well as household, to minimum immediate requirements.

If the situation is actually what the figures seem to indicate, two hundred million pounds of soap products were carried over into the second quarter from the first. This stock in itself cannot be interpreted in any way as a support to the over-all soap price structure. It is also interesting to note that this heavy soap output for the first quarter was accomplished directly in the face of wide and continuing reports of a world shortage of oils and fats, and in spite of inflated prices for these raw materials.



**P**HILIPPINE copra and coconut oil have been allocated for the year, 1947, by the International Emergency Food Council. That is "interim partial allocations" have been made pending at a later date the full allocation of all oils and fats in world trade. But before making this interim allocation of coconut oil, the IEFC has revised its estimate of Philippine production for 1947. They estimate now that the Islands will turn out the equivalent of 485,000 metric tons of oil this year. Their earlier figure was 439,000 metric tons. The larger tonnage figures well over a billion pounds of coconut oil for 1947. Of this amount, the United States will get

slightly over 450 million pounds, or about forty-five per cent.

This latest yearly allocation of coconut oil to the United States by IEFC is well under the almost half-billion pounds actually imported into the United States as copra or oil in 1946. Of the 1946 imports, however, a considerable tonnage was indicated as being processed in the United States for the account of other countries and for re-export. At the same time, the total tonnage available for American use in food and in the soap kettle this year is estimated to be considerably below that of 1946 in spite of the increased Philippine production.



**A** CONTINUATION of controls for oil and fat imports and exports through adherence to the International Emergency Food Council until July, 1948, was urged upon Congress by the President late last month. But the opposition to the President's request in trade and industry is strong, even though some world oil and fat experts agree that controls are still necessary. Opponents of IEFC control point to the wild gyrations of the tallow, grease, and oil markets of the past two months as a sample of what can take place in individual markets in spite of world trade restrictions. They maintain that the unprecedented fluctuations in prices for tallow can happen again, or in some other fat or oil, and that import restrictions and allocations invite and encourage such local disturbances in world markets which could not occur in the free flow of trade.

Reasons why fat and oil controls should be continued, as advanced from two different sources, present an amusing contrast. Without controls, two exactly opposite things will and can happen, according to the point of view of control advocates. First, upon the removal of controls, stocks of American oils and fats will be

siphoned out of this country by the heavy demand and high prices for export, stripping the home market and sending prices skyrocketing again. Second, the removal of controls will place the poorer nations of Europe and elsewhere at the mercy of our heavy buying power. American buyers will outbid them in world markets and all available fats and oils will come to the United States and nothing will be left for other nations. So, you "pay your money and take your choice."

After studying the fat and oil markets for more than twenty-five years, we must admit that we had never expected to observe such a display as has been put on in recent months. Whether IEFC controls were a material factor in the crazy market fluctuations or whether such were due to concentrated competitive buying is beside the point. The fact remains that any restrictions to the free flow of trade engender uncertainty and instability, encourage abnormal market fluctuations, prevent the quick correction of such fluctuations, or tend to smother production. We feel that IEFC controls fit right into this class and should be ended July 1 this year, not next. To adhere to them for another year will continue the period of market maladjustment and only postpone eventual necessary and painful readjustments in the world oil and fat situation.



**O**NCE again, potash soap manufacturers have undertaken to define exactly the various terms used in describing these various industrial soap specialties. Through the efforts of a committee of the Potash Soap Association, the hope has been expressed that satisfactory definitions will be worked out which will become standard in the industry. That such fully accepted definitions are needed is quite apparent in the trade. For some years, the so-called "soap content" of a potash soap has been almost anything depending upon the seller's conscience, and accordingly has been something of a standing joke among soapers. To count everything in a soap except the water as "soap content" or "anhydrous soap," unless it be exactly that, is obviously a subterfuge. Right now is not too soon for a set of true and exact definitions for general

use in the sale of potash soaps. They will be welcomed by everybody except the chiseler.



**O**UT of the complexities of progress in fat chemistry, a definite trend appears to be shaping up which a decade hence may mean a greatly changed soap industry. We feel that the handwriting is on the wall and the day is not too far distant when natural glycerides will no longer find their way to the soap kettle as such. Recent developments in fatty acid manufacture, fat splitting and fractionation at lower and ever lower costs, point to these materials as the future starting point in all soap manufacture. Except in the case of the largest soapers, whole oils and fats will not be processed by the soap manufacturer. Fatty acids to meet individual requirements for different types of soaps, always uniform, and lacking the drawbacks of natural glycerides, will comprise the basic raw material for the average soap kettle.

Except for a number of old-time soap makers who steadfastly refuse to admit the superiority of fatty acids over natural oils in the soap kettle, we believe that the trend is quite apparent. No matter whether large or small operations, the glycerine uniformly will be taken out first and then the soap will be produced. Whether it be in the latest continuous process or in the plant of the smallest potash soaper, the same rule will apply. Those who do not split their own fats will buy fatty acids. In the light of the new trend, it will not be economic to do otherwise.

Not only for the manufacture of soap alone do fatty acids with each passing year take on greater industrial importance. Their economic production rests also on their use in a host of new fields of which synthetic organic detergents, directly competitive to soap, are notably important. Although some fat chemists as far back as twenty years ago foresaw the direction of the new trends in soap manufacture, we believe that comparatively few had an inkling of the extent to which industrial fatty acid developments would expand within a few short years. And it is on these latter we believe, that a changed future course for soap manufacture has already been charted.



**W**HEN a new statute affecting important property rights of millions of citizens and introducing new legal concepts is enacted, there usually follows an initial period of uncertainty and confusion as to its exact meaning and scope. The new trade-mark statute is no exception to this rule. As a matter of fact, its sponsors foresaw so many problems which would necessarily arise in its administration by the Patent Office and its application by trade-mark owners that Congress provided a one-year adjustment period before the actual effective date of the new law. This one-year period from July 5, 1946 until this coming July 5 has already witnessed concerted efforts on the part of

**By**  
**Walter J. Derenberg\***

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all those concerned to give careful study to the new provisions, to suggest rules for their administration, and even to propose amendments in order to remove undesirable features and existing ambiguities. As was to be expected, the final product which is the result of Congressional action and study over a twenty-five year period bears all the imprints of a compromise measure. And in some of its new provisions the new Act, as finally worded, shows the

\* Before the Toilet Goods Association, New York—May 15, 1947.

unhappy results of some last-minute amendments and revision in conference. A balance had to be struck between deserved protection of the trade-mark owner of his established goodwill on the one hand, and the interest of the public against monopolistic abuses of trade-mark rights on the other. But even though the Lanham Act may have suffered somewhat in clarity and purpose as a result of the great number of amendments and changes made up to the last moment, it will, in my opinion, over the course of time prove to be a much more progressive, modern, and flexible instrument than is the outmoded present Trade-Mark Act of 1905.

There apparently prevails widespread confusion among trade and in-



dustry at the present time with regard to the alleged revolutionizing effect of the new Trade-Mark Act on established rights. The Patent Office is receiving letters almost daily asking what steps should be taken in order to prevent cancellation on July 5 of presently registered trade-marks. Many concerns express fear that unless hasty and immediate action be taken by them upon the effective date of the Act, their existing rights will be in jeopardy and become legally vulnerable. I think it would not be amiss, therefore, first to offer a few observations as to what the new Trade-Mark Act does not do and does not attempt to do, and then call your attention to some of its major provisions which were intended to benefit all trade-mark owners.

Let it be said at the outset that *use* of a trade-mark will remain the decisive factor just as it is controlling at the present time. Nowhere does the new Act attempt to confer rights in a trade-mark upon registration alone. On the contrary, the new law is much more specific in insisting upon continued use of a registered trade-mark than is the now prevailing statute of 1905. In the future a registered trade-mark will not long survive, despite its registration, unless it can be shown to be in actual use by its owner. It is specifically provided that after five years from the date of registration the owner must file an affidavit with the Patent Office showing that the registered mark is still in use or that its non-use is due to special circumstances, such as, for instance, war or prohibition. If such affidavit is not filed, the registered mark will be cancelled. Similar affidavits will have to be filed whenever a registered trade-mark comes up for renewal or when the owner of a presently registered mark desires to convert his registration to the new Act. It would be fallacious, therefore, to assume that upon obtaining a registration under the new Act its owner may sit idly by without actively and continuously using the mark. One of the clear purposes of the new legislation is to prevent the register from being cluttered with marks which are not in actual use. The new Act has

not embodied the concept so widely prevailing in foreign countries of permitting the registration of so-called defensive marks for defensive goods. In other words, it would avail a perfume manufacturer nothing to register twelve different forms of the same trade-mark with slight variations unless he is actually using such twelve forms. In the absence of use he would not even be able to obtain an original registration, nor would the new law permit such manufacturer to register his mark in advance for goods or classes on which he is not using the mark at the time of registration. In other words, he can no more protect his potential future business in different lines under the new law, as he is able to do under the now prevailing statute. In view of this legislative policy, it will probably not be safe for a trade-mark owner to rely upon one or two token sales or shipments at the time when the filing of an affidavit of continued use is required under the new law. While such occasional or individual shipments have been held by the Patent Office to be a sufficient basis for a showing of use of a trade-mark in interstate commerce, under the present law, it is likely that somewhat stricter requirements will be applied in the future if a manufacturer wants to preserve his mark on the register or obtain its renewal after twenty years. A certain continuity of use will probably be required and the purely local and incidental use may in all probability be held insufficient for the required showing that the registered mark is "still in use." Thus, it is clear that one of the things the new law does not do is to substitute registration of a trade-mark for its use. On the contrary, proper use of the mark as such remains of paramount importance and controlling legal significance even under the new law.

Another widely prevailing misconception is that existing registrations will be impaired unless some action is taken under the new Act. It cannot be stressed too much that there is nothing in the new law which compels any action on the part of a well-known and well-established trade-mark which is now registered under

the Act of 1905. Rather than hastily rushing to republish or reregister such marks, their owners should with the aid of counsel carefully weigh the respective advantages and disadvantages which such republication or reregistration would incur. It must not be supposed that republication or reregistration under the new law carries with it only benefits and advantages. I shall refer to some of the most important advantages, but should like to point out also a few significant factors which should be considered in determining whether a registered mark should now be republished or registered. The Federal Trade Commission has been given jurisdiction under the new Act to apply for cancellation of registered trade-marks on numerous grounds. But this jurisdiction is expressly limited to marks registered on the principal register under the new Act. It would seem to follow, therefore, that the Federal Trade Commission would lack jurisdiction to attack the validity of any trade-mark now registered under the Act of 1905 and not republished or reregistered under the new law. This is certainly one important factor which may well enter into any discussion of the advisability of converting existing trade-marks. Furthermore, the affidavit of continued use will not be required for any mark which is presently registered and for which the benefits of the new law have not been sought. Consequently, if a manufacturer's trade-mark is likely to be temporarily discontinued within the next few years, such mark may be exposed to greater danger after republication than it would be if no action at all were taken with regard to it when the new Act becomes effective.

Nor should it be supposed for one minute that republication or reregistration would protect the mark from becoming a generic term or, as the new Act calls it, "a common descriptive name." This danger is and will be ever present regardless of what form of registration is secured and whether or not there is any registration at all. If one has a world-famous trade-mark, therefore, such as, for instance, "Kodak," the only conceivable danger to which such mark al-

ways remains exposed and has to be protected against is its becoming too popular and losing its distinctiveness as a trade-mark. In this most important struggle against loss of a trade-mark through over-popularization, the new law provides no assistance whatsoever. On the contrary, a last-minute amendment to the Act now expressly provides that a mark which has become the common descriptive name of an article can never acquire incontestability.

**I**N THIS connection, there is another trap into which trade-mark owners may fall unless the matter is given careful thought and study. The new law for the first time permits the use of an abbreviated registration notice, to wit, the letter "R" enclosed in a circle. Already advertising agencies are jumping at the occasion to suggest more artistic advertisements by omitting the customary notice and substituting the abbreviated form therefor. Such a suggestion will, of course, result in the usual difference of opinion and approach by the advertising agency and legal counsel. It is my personal opinion that wherever there might exist the slightest possibility of a mark's becoming a common descriptive term the full trade-mark notice rather than the abbreviated mark should be used. Thus, the manufacturer of the world-famous "Thermos" bottle is presently engaged in a vigorous campaign to preserve the trade-mark significance of the registered mark "Thermos" and it would be poor strategy, in my judgment, for any trade-mark owner to take advantage of the abbreviated notice under the new Act in any situation where it is important and mandatory to keep the trade-mark significance of the word constantly before the public eye.

There is another gap in the new Act which will improve particularly significant to the members of the toilet goods industry. At one time the Lanham Act contained a provision specifically outlawing as trade-mark infringement the unauthorized use of a trade-mark on a repaired, repackaged, or rebottled article. Such a provision was deemed necessary in order

to prevent unreliable and discredited rebottlers from using an established trade-mark on a rebottled product. Many years ago, the Supreme Court had held in a famous case involving "Coty's" perfume that a rebottler could not ordinarily be prevented from truthfully stating that the rebottled perfume was or contained Coty's famous brand. The feeling generally prevailed in the cosmetic industry that the limited protection thus granted by the Supreme Court was insufficient to satisfy the honest dealer's needs and it was hoped that the new trade-mark law by expressly prohibiting the use of a trade-mark on rebottled or repackaged articles would furnish more complete and reliable protection to the owner of cosmetics marks. However, these industry hopes were blasted and the rebottling amendment was stricken from the new Trade-Mark Act as finally enacted. Not only that: The Supreme Court held only a few days ago in one of its relatively few unanimous decisions in the last few years that the owner of the famous trade-mark "Champion" for spark plugs could not prevent use of the name "Champion" on a reconditioned plug by a competitor who after prolonged trial was found guilty of both trade-mark infringement and unfair competition!

There is little, if any, hope, therefore, that under the new Trade-Mark Act the practice of rebottling perfumes or repackaging drugs will be completely outlawed as infringement or unfair competition unless, perhaps, the industry itself by way of trade practice conferences should decide to adopt and follow such course.

Finally,—and still talking about what the new Trade-Mark Act does not do—I should like to mention that for constitutional reasons it does not attempt to supersede existing state legislation on trade-marks but it does state as one of its purposes "to protect federally registered trade-marks from state interference." In other words, while the individual states may still provide for some form of registration of marks which are in local use there, the new Trade-Mark Act will give the first registrant under it nationwide

coverage with regard to all commerce which can be lawfully regulated by Congress. The Supreme Court has in recent years so enlarged the meaning and scope of the word "commerce" as used in our Constitution as to comprise the greater part of all intrastate business activities as long as they may in some indirect way affect the free flow of commerce. As a matter of fact, a case is pending before the Supreme Court at the present time in which the Court is asked to hold that the operations of a taxicab company between two railroad stations within the City of Chicago are interstate transactions so as to come within federal control. If the new Trade-Mark Act, although constitutionally limited to a coverage of commerce within the control of Congress, is examined and analyzed in the light of this recent trend, there can be little doubt that the effect of state legislation and state registration on established trade-marks will be reduced to the bare minimum. It is my firm conviction that the apparently never-ending efforts of certain business organizations to sponsor the enactment of compulsory state registration laws and to recommend trade-mark registration in all forty-eight states apart from, or in addition to, federal registration, will be doomed to failure and would result in exactly that type of state interference against which the new Trade-Mark Act expressly protects those who are engaged in any commerce within the control of Congress.

**T**HUS far, we have considered some of the more important phases of our present trade-mark regime which—widespread belief to the contrary notwithstanding—will not be changed or affected by the new legislation. Let me now call your attention to a few of the more important benefits which the new Act will confer upon the users of trade-marks. A great many of these benefits will be, it may be said in passing, equally available to those trade-mark owners who take no action under the new law or who may not even see fit to obtain any registration whatsoever. For instance, the provision of the new law providing for a freer assignment of trade-marks and



the granting of licenses under certain safeguards will be applicable to all trade-marks whether registered or not and regardless of whether registered under the old or under the new law. Similarly, the provision of the new law permitting use of a trade-mark by a so-called related company, usually a subsidiary or licensee, is not limited to trade-marks registered under the new Act, but may be taken advantage of by all trade-mark owners regardless of registration.

Generally speaking, the new Trade-Mark Act has four main objectives. As already stated, it tries to protect federally registered trade-marks against state interference; secondly, it proposes to provide additional incentives for trade-mark owners to register on one of the available federal registers; thirdly, it aims to bring our domestic law into accord with our obligations under certain international conventions to which the United States is a party, and finally, and most important, its purpose is to bring our law regarding the registration of trade-marks into harmony with the far more advanced and rapidly growing law of unfair competition. Most of the outstanding benefits which will be available under the new Act are based or can be traced to this last mentioned purpose. Throughout the Act we find a much more liberal approach both with regard to what may be registered and with regard to the scope and measure of protection which will be available against infringement. The rules and regulations of the Patent Office which are now available in tentative form and which are expected to be promulgated toward the beginning of June were written with these aims in mind and are intended to assist trade-mark owners in obtaining more flexible and more liberal protection through federal registration than is available under the now prevailing statute and rules. Some of the major improvements which will have specific interest and application to the members of the toilet goods industry will be discussed briefly.

First, the new Act will make the selection of a new trade-mark a considerably smaller gamble than it

has come to be under the present law. The now prevailing statute categorically excludes from registration on the main register all marks which are merely descriptive or geographical or are merely surnames, no matter how famous such names may have become over the course of years. The one insufficient exception to this strict rule was made in cases where such geographical or descriptive term or surname could be shown to have been used exclusively as a trade-mark for a period of ten years prior to 1905. Consequently, hundreds of trade-marks which have acquired celebrity, or as it is usually termed in legal terminology "a secondary meaning" as trade-marks, could not be registered on the main register even though they may have found ample protection by the equity courts against infringement or unfair competition. The rigid disqualification of surnames, unless they are so distinctively displayed as to become the minor element of the entire trade-mark, has proven particularly detrimental and inconvenient to industries such as the cosmetic industry in which by far the greater number of famous trade-marks either constitute or are derived from the names of their owners. It seems that from time immemorial manufacturers have taken justifiable pride in using their own names as designation of their merchandise and they are usually not easily persuaded by their counsel to forego use of their own name as a mark in favor of an entirely arbitrary new device which may be more easily registrable under the law. Take such famous names as, for instance, "Coty," "Guerlain," "Chanel," "Elizabeth Arden," "Dorothy Gray," and innumerable others. None of these names as such can be registered as trade-marks under the present Act of 1905 unless they have been in ten years exclusive use prior to 1905. But not only that: The Patent Office in considering registrability has until now applied the so-called "telephone book test." Whenever a mark or name which might possibly be the name of a living individual is sought to be registered, the Trade-Mark Division will pick up a number of telephone directories and

if such name appears in one of them, the mark will be refused. In a rather recent case, an applicant pointed out in vain that the name did not appear in any of the New York telephone directories containing several million names. Since it appeared in the Washington book, it was refused registration. Under the new law this will no longer be true. In order to be rejected, the name must be "primarily merely a surname." Moreover, if it can be shown that a surname has acquired distinctiveness over the course of years, it will now be registrable on the principal register even though it may be a common surname as applied to other merchandise. Even such a common name as "Smith Brothers" may acquire distinctiveness as applied to cough-drops over a course of a one hundred-year period.

**T**HE new Act gives much more latitude in using a name which may have some remote geographical significance. Not only may such name become a valid trade-mark after having acquired distinctiveness, but the new law excludes geographical names from the register only if they are *primarily* merely geographical when applied to the goods of the applicant. Thus, the Patent Office should no longer refuse registration of the word "Kem" for playing cards on the ground that "Kem" is the name of a small river in Siberia. Moreover, it can be argued under the new law that a comparatively well-known geographical term may not be considered merely geographical if applied to particular merchandise. Even a designation such as "Philadelphia Cheese" may acquire distinctiveness as a trade-mark. In England, on the other hand, the mark "Liverpool" for cables was rejected despite a recognized secondary meaning on the ground that some geographical words are so predominantly geographical that under no circumstances could they ever acquire a true trade-mark significance.

The provisions of the new law with regard to descriptive terms are also somewhat more flexible, although the new law still excludes

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# T. G. A. Holds Annual Meeting

**T**HE annual meeting of the Toilet Goods Association was held at the Waldorf-Astoria, New York, May 14, 15 and 16, immediately following a two-day Trade Practice Conference, called by the Federal Trade Commission May 12 and 13. Possible trade practice rules were discussed at length, with considerable difference of opinion being noted among various factors in the industry as to the desirability of suggested trade rules. A second important topic touched on by a number of speakers was the 20 per cent federal sales tax on products of the industry. A number of speakers protested continuance of such a discriminatory tax, adopted originally as a wartime measure, so long after the termination of the war. Announcement was made of the setting up of a program, sponsored by the association, for industry-wide technical research, and the TGA also has under consideration a proposal for a public relations program. Paul H. Douglas, of Bourjois, Inc., president of the Association, was re-elected by the members to serve a second term, with S. L. Mayham continuing as executive vice-president.

The opening morning session on Wednesday, May 14th, was given over to a forum on trade practices—continuing and reviewing the discussion which had taken place on the two previous days at the Trade Practice Conference called by the Federal Trade Commission. At this two-day session, May 12th and 13th, Henry Miller, director of the Trade Practice Division of the FTC, who presided, conducted an exploratory session at which open floor discussion was held on various suggested trade practice rules for the cosmetic and toilet preparations industry. Major discussion at the conference centered on two of the suggested trade practice rules, covering payments and allowances for promo-

tional services, advertising, etc. Co-operative advertising and displays, demonstrators, PM's and other topics familiar to the industry were discussed at length and no greater agreement was noted on these debated practices than has been reached in previous discussions of the same themes. No decision may be anticipated for some time by the Federal Trade Commission as to exactly what trade practice regulations will be suggested for industry adoption.

At the afternoon session, on May 14th, the president of the Association, Paul H. Douglas, and the executive vice-president, S. L. Mayham, gave their annual reports. Mr. Douglas warned the industry that since 1941 the labor costs of toilet goods manufacturers have increased from 75 per cent to 125 per cent, while during the same period selling prices have remained practically unchanged. Raw material costs have also increased sharply. It has been possible to keep industry profits at a satisfactory level only because volume of business done has increased sharply — an increase from \$420,000,000 in 1941 to \$700,000,000 in 1946 — approximately 66 per cent. The percentage of profit is currently much lower than in the pre-war years.

He warned the industry that they can no longer count on this heavy increase in business to guarantee future profits. The latest U. S. Treasury report on excise tax payments by toilet goods manufacturers shows a falling off in retail sales of the industry's products. If this trend is continued, higher prices will be necessary all along the line, he said.

The most logical way out for the industry, and for toilet goods consumers as well, said Mr. Douglas, would be to abolish the 20 per cent sales tax on toilet goods. The Government is collecting over \$90,000,000 a

year, he indicated, on the sale of products which are essentially necessities. During the war years, the industry made no protest, but it is felt now that continuance of this excessively high tax rate is unwarranted. The elimination of the 20 per cent sales tax, said Mr. Douglas, would result in an immediate increase in the volume of sales and would enable the industry to retain present price levels or in many cases to reduce them substantially.

Mr. Mayham referred to the same topic, saying that "there is no doubt that at least 95 per cent of the products of the toilet goods industry are essential to the health, morale and well being of the consuming public. To tax such products in peace time at the absurdly high rate of 20 per cent is a disservice to consumers."

Mr. Mayham referred to the work of the Association's committee on historical data under the successive chairmanships of H. P. Willats and Mrs. Frances Hollis. He reported that an outline history of American work in toilet goods has been published under the authorship of Gilbert Vail, historical researcher and writer, and that within a few weeks, copies of this new volume will be available.

Mr. Mayham also outlined the work of the Association in preparing for the Trade Practice Conference. He emphasized that while the Association was glad to facilitate preparations for the conference, it will take no position as an association on the practices themselves, or any rules which may be proposed by the Federal Trade Commission.

Concluding this session, the members heard a discussion by Miss Sally Dickson of a suggested public relations program on behalf of the toilet goods industry, to be sponsored by the association. Discussion on the floor of the meeting seemed to indicate

general approval of the suggested program which was referred to the board for their decision.

**A**T the May 15th morning session, the Association's counsel, Hugo Mock, and the Director of Scientific Research and Standards, H. D. Goulden, both reported. Mr. Mock referred again to the inconsistency of treating toilet preparations as luxury items from a tax standpoint. He emphasized that toilet preparations are used by all women of the United States, regardless of income or social position, and that they are definitely not luxury items.

Mr. Goulden, in his report, reviewed the work of the Scientific Advisory Committee, pointing out that in the past year new TGA standards have been issued for triethanolamine, cetyl alcohol, stearic acid-double pressed, stearic acid-triple pressed, glyceryl monostearate non-self-emulsifying, kaolin, oleic acid and castor oil. The number of standards issued by the TGA now numbers 25. The Committee now has under consideration new standards for lanolin, coconut oil, spermaceti and magnesium oxide.

Reporting on the Association's proposed research program, Mr. Goulden announced that at a meeting of the Board of Directors prior to the convention, a substantial appropriation was made to initiate a research program. He indicated that it is not the intention of the Association to conduct research in its own laboratories but rather to take its problems to established research laboratories for study. The research committee has recommended that one of the early problems for consideration should be the irritation and sensitivity of cosmetic materials.

The balance of the morning session included two talks on the Lantham (trade mark) Act by Walter J. Derenberg, U. S. Patent Office, and Mrs. Daphne Robert of the Coca Cola Company. Mr. Derenberg's talk appears elsewhere in this issue. At the afternoon session on May 15th, T. W. Delahanty of the Chemical and Drug Division, Office of International Trade,

U. S. Department of Commerce, spoke on expanding foreign sales of United States toilet preparations. He reported that in 1946, American exports of toiletries were at three times the pre-war rate—totalling almost \$30,000,000 worth of products. Canada, the West Indies, Latin America and American territorial possessions took almost one-half of our exports, amounting to over thirteen and a half million dollars.

He reported that the Office of International Trade is prepared to give American manufacturers every assistance in further developing their export trade and is in a position to furnish advice on most of the twenty-five principal toiletry markets. In the course of the coming year, reports will be released on the outlook for toiletry

sales in every one of the more than one hundred world markets.

At the business meeting which took up the balance of the Thursday afternoon session, Paul Douglas was re-elected president of the association, together with other officers who have served for the past year, the only exception being the treasurer. In this post Richard Stern of Ferd. Mulhens, Inc., has succeeded Paul F. Vallee of Roger & Gallet who has retired. Two new members were elected to the Board of Directors, Wm. Denny, Jr., of Denny & Denny, Philadelphia, and Richard Salomon of Charles of the Ritz, New York. They take the positions vacated by Charles Mooney of Elizabeth Arden and Thomas Lewis of Helena Rubinstein.

## Proceedings of Scientific Section

**T**EN papers on toilet goods technology were featured by the Scientific Section of the Association at their conference which took over the entire program on May 16th. Pending publication in full by the association, abstracts of the papers most interesting to the soap maker have been released.

### "SOME STUDIES IN THE CORROSION OF COLLAPSIBLE TUBES"

M. Schor and W. W. Sweet  
Colgate-Palmolive-Peet Co.

Measurement of electro-potential differences and current flow in experimental cells between electrodes of tube metals, probable metallic surface contamination and calomel half-cells have been employed to estimate the corrosive effects or deterioration of product which may be encountered in certain creams, if packaged in collapsible tubes. This technique has also been applied to quickly determine the optimum concentrations of certain materials and formulations which can have corrosion-inhibiting properties or, the reverse, in possibly promoting corrosion of tubes or damage to the product in contact with the tube material under commercial usage conditions. Particular reference has been made to aluminum collapsible tubes and the solution of some difficulties encountered in their use, by means of the above technique.

### "DETERMINATION OF FREEZING EXPANSIONS OF COSMETIC AND PHARMACEUTICAL PREPARATIONS"

Albert F. Guiteras and Irving Reich  
Foster D. Snell, Inc.

Bursting of bottles or tubes of liquid, jelly, or paste preparations due to freezing during shipment is a common problem. Addition of solutes (dis-

solved materials) lowers freezing points, giving protection. Alcohol, glycerin, propylene glycol and inorganic salts are commonly used. It is frequently not realized that small percentages of solute are of little use. Lowering of freezing points achieved by some common solutes are listed to demonstrate this.

Addition of solute not only causes lower freezing temperature, but leads to freezing over a temperature range rather than at a single temperature. This is discussed in terms of the phase rule. The consequence of this is that protection conferred should be measured not in terms of freezing points but in terms of equilibrium volume of the preparation at any temperature.

A method to measure equilibrium volume at low temperatures is described. The dilatometric principle is used. Babcock sulfonation bottles have been found to be very convenient for this purpose. The bottles are partially filled with the material being tested, then filled to mark with petroleum solvent. Temperatures are lowered several degrees at a time and volume readings taken. Sufficient time for equilibrium must be allowed after each temperature reduction, this being especially important in the freezing range. Volumes can then be read again during warming. If true equilibria were reached, they should check volumes read at the same temperatures during cooling. A convenient cooling setup is described. Application of the technique to practical problems was discussed.

### "THE DEVELOPMENT OF ORGANIC CHEMICALS FOR THE COSMETIC INDUSTRY"

H. E. Wassell and C. P. McClelland  
Carbide and Carbon Chemicals Corp.

The steps necessary to develop an organic chemical for the cosmetic industry from the laboratory stage to a commercial product were outlined with

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# DISHWASHING DETERGENTS

by Milton A. Lesser

*Formulas are offered for  
detergents used in manual  
washing, in mechanical dish-  
washers, and in sanitizing dishes*

**T**HE importance of the proper washing of dishes, glassware and other eating utensils, both from the esthetic and especially from the sanitary viewpoints, has been well established. One could, of course, go into considerable detail in discussing the many steps which have led to the present interest in dishwashing compounds. It is to be doubted, however, that the background could be summarized better or more concisely than was done in a recent study of dishwashing detergents appearing in *Public Health Reports*.

"With the growth of urban populations and a large increase in the number of people traveling and eating out," said Mann and Ruchhoft, (1) "restaurant sanitation has become an important factor in public health. The importance of multi-use eating utensils in the spread of disease has been demonstrated by extensive experiments conducted by the Army. Information demonstrating the need for better sanitizing practices in handling multi-use utensils is available in the files of many State health departments. The public, because of the increased practice of health departments in grading and placarding eating establishments, is becoming aware of the need for restau-

rant sanitation. Municipal and State health departments, in increasing numbers, are adopting new ordinances or revising old ones for the control and improvement of sanitation in public eating and drinking establishments. With each reduction of permissible utensil bacterial count and each refinement in examining technique, the question of efficient detergent operation in the cleansing of multi-use utensils assumes a greater importance. Unless a utensil is first completely cleaned, proper sterilization is improbable with hot water and steam and impossible with bactericidal chemicals."

"Clean" is defined by these workers as being free from food soils, greasy films, and hard-water films which may harbor bacteria and protect them from the bactericidal agent (e.g. hot water, chlorine, etc.) which is used later.

As pointed out by Mallmann (2) some years ago, effective sanitization can be attained where restaurant owners are taught how to sanitize eating utensils. More and more, it is being realized that not only are temperatures of wash and rinse waters of importance but also that the detergent used is a controlling factor in thorough cleans-

ing. Thus, it has been shown by Gilcreas and O'Brien (3) that when an efficient detergent is used, practically complete removal of bacteria can be secured even with tableware deliberately contaminated with as high as a million and a half micro-organisms per utensil.

Men who have studied the subject have set up various standards or basic requirements for dishwashing detergents. Gilcreas and O'Brien, (3) for example, defined an efficient detergent for cleansing of eating, drinking and cooking utensils as a substance or compound soluble in water, which at a temperature of approximately 120°F will provide complete removal of all types of characteristic soiling material in a short period of time, will produce a free-rinsing surface, will reduce to a minimum the formation of a film of precipitated mineral salts and similar substances on the washed surfaces, and will function effectively in water of varying hardness. Much more recently, at the December, 1946 meeting of the National Association of Insecticide & Disinfectant Manufacturers, Tiedeman (4) stated that the qualities expected of a good dishwashing detergent are as follows: It must emulsify fats, deflocculate food particles, disperse

solids in a liquid, wet the surfaces of utensils, rinse freely, not stain or leave a residue, be non-irritating to the skin, and be non-poisonous.

If highest efficiency is to be attained, it is obvious that a number of factors must be taken into consideration both in the formulation and actual use of dishwashing compounds. According to Andrews, (5) the following factors influence the selection and efficiency of detergents: hardness of water, equipment being used, temperature, time of contact, and concentration.

Selection of the correct composition for dishwashing is an important consideration in hard water areas. Uncontrolled water hardness, due largely to calcium and magnesium salts, is detrimental to cleaning processes in which alkaline compounds or soap are used at elevated temperatures. Water hardness interferes with the cleaning process by reducing the active detergent content of the washing solution through precipitation, necessitating the use of greater amounts of detergent, and by producing films and water spots on the cleaned utensil.

As noted by Mann and Ruchhoft, (6) the elimination of these troublesome factors may be brought about by complete softening of the water prior to use, which in most cases is impossible or at least impractical, or by using certain complex polyphosphates which have the ability to sequester the hardness of water, thus inhibiting the formation of insoluble calcium and magnesium soaps. The three compounds commonly employed in the manufacture of detergents which possess the property of sequestration are sodium hexametaphosphate, tetrasodium pyrophosphate, and sodium tetrphosphate.

Because of their lack of active alkalinity and practically neutral pH values, sodium hexametaphosphate and sodium tetrphosphate must be used in mixtures containing other alkaline materials. Tetrasodium pyrophosphate, however, has a considerably higher active alkalinity and may be used without fortification for some cleaning operations. Tests in actual washing procedures, made by these workers, show that it is essential to use large

proportions of these sequestering agents in detergent mixtures in order to prevent the formation of films on cleaned utensils.

It should also be pointed out that certain synthetic detergents are also finding increasing use in the formulation of dishwashing compounds. As is well known, one of the chief advantages of these agents is the fact that they do not form insoluble precipitates in hard waters.

**T**HE method or type of equipment may also have an important bearing on the results attained because different types of detergents are necessary for machine washing and for washing by hand. For example, the Army guide (7) for using dishwashing supplies warns that soap should never be used in mechanical dishwashers since suds-forming materials will not operate in the spray jets. Conversely it is stressed that the compounds used in machines are designed especially for mechanical dishwashers and are not intended for other purposes. Soap is specified as the standard hand-dishwashing material, but alkalies, like trisodium phosphate or sodium carbonate, may be added as water-softening agents if required.

Although there are some observations (8) which seem to indicate that better results (e.g. lower bacterial counts) are obtained with machine dishwashing than with hand methods, Andrews (5) remarks that satisfactory results can be obtained by either method. As with the human element in manual methods, there are a number of factors, such as pressure, temperature, alkalinity and cleanliness of the equipment, which influence the efficiency of dishwashing machine operations. (9, 10).

The thoroughness with which dishes are mechanically cleaned or scraped prior to actual washing, and the temperature of the washing solutions and the rinsing water will all have an important bearing on the results obtained. (11) The time of contact will also influence the sanitizing process. Obviously, long washing periods are more effective than short ones, inasmuch as detergent action, like any other chemical reaction, re-

quires time for completion. A certain amount of time is also essential for physical effects to take place. The tendency to hurry the dishwashing during peak or "rush" hours is hardly conducive to proper cleanliness, regardless of whether manual or mechanical dishwashing methods are used. Adding more detergent is seldom helpful and is usually wasteful.

To do an effective job, the proper concentration of detergent must be used. The cleaning properties of the wash solution cannot be improved by increasing the concentration beyond a certain point. On the contrary, excessive quantities of dishwashing compound make the final rinsing more difficult. (7) In addition, in the case of mechanical equipment, too much detergent often leads to clogging of the machine and loss of time, thereby defeating the very purpose for using excessive and wasteful amounts. (12)

Of course, the optimum concentration varies with the different detergents. Moreover, because of the variation in hardness of local water supplies, as well as the differences in methods and dishwashing equipment, a definite quantitative recommendation cannot be established for all situations. This is especially true in the case of products with national distribution. Various methods have been proposed for testing the concentration, but none of them is entirely satisfactory.

Once the quantity of dishwashing compound to be used for the local water and particular equipment has been determined, it is suggested (7) that the correct amount required should be posted on or near the dishwashing apparatus for quick reference. This will not only increase efficiency but also prevent waste. Large scale distributors of dishwashing compounds will undoubtedly find it advantageous to prepare and distribute data cards to cover the requirements of various localities. Pertinent information is generally available from Federal, State or municipal sources, as well as from manufacturers of equipment.

In the case of manual cleaning, all that is necessary is to add a measured amount of detergent to the wash-



ing trough to make a solution of the required concentration. Similar methods may be used with dishwashing machinery. With hand feeding, however, the wash water is likely to be too strong when the detergent is first added and too weak by the time more is used. A mechanical feeder, set at a specific rate, obviates these fluctuations. Automatic feeding of the detergent is considered the best method for keeping the wash water at the right concentration. Several types of automatic dispensers are available. In most feeders, powdered detergents are used, but in some types a compressed cake or briquette of detergent is dissolved at a constant rate. (5, 9)

**V**ARIOUS specifications for dishwashing compounds have been established by Government agencies, (13) while other standards have been proposed by research workers. (14) Undoubtedly the best known is Federal Specification P-D-236, which covers special detergents for aluminumware, dishwashing machines, and manual cleaning. Although this specification has no composition limitations, it does provide a number of tests upon which the acceptability of dishwashing compositions is based.

Various other tests have been developed for the purpose of determining dishwashing detergent efficiency. In the main they consist of optical or photometric devices for rapidly determining the amount of soil left after washing or for measuring the film formation resulting from the possible reaction of the cleaning agent with the hardening chemicals present in the water. (1, 10, 14, 15) Bacteriological tests, however, are still considered the most adequate practical indices of the general cleanliness or all-over sanitization of eating, drinking and cooking utensils. A comprehensive review of such tests, prepared by DuBois, (16) has been published in *Soap and Sanitary Chemicals*. More recently, a "methylene blue" test, really a modification of the milk test, has been proposed as a rapid supplement to the more exact bacteriological techniques. (17)

For the purpose of discussing formulation, dishwashing compounds

may be grouped into three broad classes. The first comprises the sudsing detergents and alkaline manual cleansers used in the hand washing of dishes and eating utensils. The second class includes the powdered alkaline mixtures employed chiefly in mechanical dishwashers. Blocks, cakes or briquettes for dishwashing machines form the third class.

Although equipment has been developed for using soap as the dishwashing detergent, (18) soap and soap powders remain important principally for cleaning utensils in the home and in eating places not equipped with mechanical devices. As already mentioned, ordinary issue soap is the standard hand-dishwashing material used in the Army, the solution being made up by dissolving 2½ ounces of soap in every 10 gallons of water. Of interest in connection with the use of soap are the observations made by Mann and Ruchhoft (1) in their studies of the efficacy of dishwashing detergents. They found that in every test carried out by their technique, the use of castile soap in distilled water showed a "very excellent washing performance."

Soap powders are quite widely used for dishwashing. While the older soap-soda ash combinations are still in use, the newer types of soap powders, rich in soap and containing sodium silicate with other alkalies, provide more efficient action. According to Levitt, (19) one such soap powder says as follows:

	Per Cent
Moisture .....	12.0
Soda ash .....	10.0
Sodium silicate .....	10.0
Sodium tetrapyrophosphate .....	10.0
Anhydrous soap .....	58.0

With many manual cleansers the tendency is to markedly reduce the soap content. One simple preparation of this sort consist of:

	Per Cent
Trisodium phosphate .....	88.0
Soap, anhydrous .....	2.0
Borax .....	10.0

A more complex mixture for use in manual dishwashing is given in the same source (20) as consisting of:

	Parts
Sodium carbonate .....	25.0
Sodium bicarbonate .....	35.0

Tetrasodium pyrophosphate ..	20.0
Trisodium phosphate (monohydrated) .....	20.0
Trisodium phosphate .....	10.0
Borax .....	8.0
Soap, anhydrous .....	2.0

Of course, in many cases soap is omitted in making alkaline manual detergents. For example, a rather simple mixture, said (21) to be highly efficient for both dishpan and machine washing is made from:

	Parts
Tetrasodium pyrophosphate (anhydrous) .....	10.0
Trisodium phosphate .....	30.0

If crystalline (hydrated) pyrophosphate is used, the quantity employed should be doubled.

The feasibility of combining a chlorine releasing agent with detergents so as to provide both disinfecting and cleansing action has been indicated in a number of instances, (22, 23, 24) not only for manual methods, but for mechanical equipment as well. Such a preparation could be compounded along the lines suggested by Belanger (25) for making a dish and glass washing compound.

	lb.
Sodium sesquicarbonate .....	35
Calcium hypochlorite .....	7

The growing importance of synthetic detergents in dishwashing compounds is well indicated in Amendment 4 to Federal Specification P-D-236. Issued on November 29, 1945, this amendment ordered the insertion of the phrase "or (and) synthetic detergent" following the word "soap." These synthetic detergents, such as the organic sulfonates, are sometimes used alone for dishwashing purposes, but often these surface active agents are combined with soap and other detergents. (26) Illustrative is the following formula, cited by Levitt (19) as being recommended for household dishwashing:

	Per Cent
Trisodium phosphate .....	60.0
Sulfonated alcohol .....	5.0
Tetrasodium pyrophosphate ..	35.0

Containing a larger number of ingredients, including soap, is the following synthetic detergent-containing manual dishwashing compound: (20)

	Per Cent
Sodium hydroxide .....	3.0
Sodium carbonate .....	27.0

Sodium bicarbonate .....	20.0
Trisodium phosphate .....	40.0
Soap .....	8.0
Synthetic detergent (hydrocarbon sulfonate) .....	2.0

Of related interest is a patented product (27) which provides both a detergent and germicidal action. In this case a dry, stable calcium hypochlorite containing upward of 50 per cent available chlorine is mixed with various specified salts of sulfonated compounds.

**A**LTHOUGH some detergents may be used for both manual and mechanical dishwashing methods, in the interests of efficiency many compounds are designed for use solely in machines. The number of materials that may be used in formulating these alkaline detergents has increased during recent years. As indicated in the report on machine dishwashing compounds by Hughes and Bernstein, (14) most commercial dishwashing detergents consist of one or more of the following common alkalis: sodium hydroxide, sodium carbonate, sodium silicates, trisodium phosphate, borax, sodium bicarbonate, sodium sesquicarbonate, and modified soda. In addition, there are frequently present molecularly dehydrated phosphates like tetrasodium pyrophosphate, sodium tripolyphosphate, sodium tetraphosphate and sodium hexametaphosphate. Synthetic detergents or wetting agents are sometimes included with the alkalis. However, because of the tendency of some of these agents to produce excessive foam in dishwashing machines, their proportions cannot be too high.

With such a number of raw materials it is obvious that many combinations are possible. Indeed it has been estimated (28) that there are probably several hundred alkaline salt combinations on the market which are being used with varying degrees of success for dishwashing and general cleaning. Of course, some of these compounds consist of single salts such as trisodium phosphate, sodium metasilicate and others. Experience has shown, however, that a combination of two or more salts provides a more rounded, efficient cleansing action. For instance, sodium metasilicate, which

has been found to be a very efficient material, (19) can be combined with sodium carbonate to form an effective detergent for washing machines, as in the following example: (20)

	Per Cent
Sodium carbonate .....	20.0
Sodium metasilicate .....	80.0

Some form of complex phosphate is generally desirable in dishwashing detergents to prevent or retard the formation of films which would retain bacteria. (6, 14) Sodium hexametaphosphate has gained a high reputation in this respect, (23) and the compound containing this chemical, developed by Schwartz and Gilmore, (29) is often cited and used as a basis of comparison by other workers. (2, 30) The mixture which Schwartz and Gilmore found most effective as a detergent for dishwashing machines consists of:

	Per Cent
Sodium hexametaphosphate ..	40.0
Sodium metasilicate .....	40.0
Trisodium phosphate .....	15.0
Sodium hydroxide .....	5.0

More recently, as a result of studies with a photometric device of their own development, Wilson and Mendenhall (15) found the following composition gave the lowest film formation of the several detergents tested:

	Per Cent
Sodium tetraphosphate .....	32.0
Sodium metasilicate .....	40.0
Sodium carbonate .....	28.0

Obviously it is possible to cite many more examples. However, much of the data pertinent to formulation of efficient machine dishwashing compounds has been summarized by Hughes and Bernstein. (14) As a result of their quite extensive studies, they concluded that suitable composition requirements are as follows:

	% by Weight	Mini- mum	Maxi- mum
Moisture .....	—	25	—
Alkali (as Na <sub>2</sub> O) .....	—	30	45
Phosphates (as P <sub>2</sub> O <sub>5</sub> ) .....	—	20	—
Silicates (as SiO <sub>2</sub> ) .....	—	8	—
Carbonates (as CO <sub>2</sub> ) .....	—	20	—
Insoluble matter .....	—	1	—
Total of P <sub>2</sub> O <sub>5</sub> , SiO <sub>2</sub> , CO <sub>2</sub> ..	—	35	—
Total of Na <sub>2</sub> O, P <sub>2</sub> O <sub>5</sub> , SiO <sub>2</sub> , CO <sub>2</sub> .....	—	70	—

Detergent blocks or briquettes with automatic feeders are gaining

in popularity for use in dishwashing machines because they are easier to handle, do not require frequent re-filling and have various other advantages. In the main, their ingredients are the same as those used in powder detergents for machine dishwashers. Thus, analysis (19) of one of the older type blocks showed it to contain:

	Parts
Moisture .....	19.20
Sodium silicate .....	3.52
Sodium carbonate .....	65.00
Caustic soda .....	2.00
Trisodium phosphate .....	9.57
Sodium chloride .....	0.60

The trend in newer formulations may be traced in the patent literature. (31) Indicative are the several patents granted to MacMahon. (32) For example, according to one of these patents, efficient detergent briquettes may be prepared from:

	Per Cent
Trisodium phosphate .....	1-15
Sodium silicate .....	1-25
Sodium carbonate .....	20-50
Tetrasodium pyrophosphate ..	3-25
Water .....	30-40

Alkali-stable surface active agents, in amounts not exceeding 5 per cent, may be included in these briquettes; the synthetic detergents serving to improve the washing action. It is claimed that by observing various precautions, the briquettes can be given outstanding physical and chemical stability, mechanical ruggedness, and uniform rate of solution.

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# Oil Chemists

## Meet in New Orleans

**T**HE thirty-eighth annual meeting of the American Oil Chemists' Society was held in New Orleans at the Roosevelt Hotel, May 20-22 with S. O. Sorenson, Archer-Daniels' Midland Co., Minneapolis, president of the society presiding and Colonel H. P. Newton, Southern Regional Research Laboratory, New Orleans as general chairman. Over 260 oil chemists from about 150 industrial firms and governmental agencies were registered, and although the meeting was not quite as well attended as that of last year, a great deal was accomplished in bringing the members up to date with the technical advances in the field of vegetable oil technology and the accomplishments of the society during the past year.

The opening session, conducted by Mr. Sorenson, was devoted to reports by committees and officers. He outlined the activities of the society during the past year, stating that some 26 committees and 17 sub-committees constituting 331 individuals had cooperated on various projects, and 338 new members had joined since the meeting last year. He suggested wider selection of personnel to take part in committee work and further streamlining of the duties of the president of the society as the increase in the scope and detail of all phases of the society's work has increased the burden of work and the demands on the time of the chief officer. Dr. Reid T. Milner, Chief of the Analytical and Physical Division, Northern Regional Research Laboratory, USDA, Peoria, Ill., later elected president of the society for 1947-48, was awarded the Lamar Kishlar cup for his work as chairman of the membership committee in the membership drive of the past year. He pointed out that over 500



R. T. MILNER

Dr. R. T. Milner, newly elected president of the American Oil Chemists' Society, received his Bachelor's degree in chemical engineering and his Master's in physical chemistry at the University of Illinois. He obtained his Doctorate at the University of California in chemistry. Dr. Milner's research career began at the Bureau of Mines in Pittsburgh. Later he transferred to the Fixed Nitrogen Laboratory of the U. S. Department of Agriculture's Bureau of Chemistry and Soils at Washington, D. C.

In 1936 Dr. Milner joined the staff of the U. S. Regional Soybean Industrial Products Laboratory at Urbana, Illinois, where he was given charge of the analytical section of that Laboratory. He assumed the directorship of the Laboratory at Urbana in 1939 and remained in that position until establishment of the four Regional Research Laboratories. In 1942 the chemical and engineering development work was transferred from Urbana to the Northern Regional Research Laboratory at Peoria, Ill., and he was made Head of the Analytical and Physical Chemical Division of the latter, a post he has held since.

In the American Oil Chemists' Society he has served as chairman of the soybean analysis committee, and has been a member of the committees for bleaching methods, oil color, refining loss, fat analysis, and seed and meal analysis. During the past year he has served as first vice-president of the Society.

domestic corporations now belong to the society.

Six technical papers were presented on Tuesday afternoon and five on Wednesday morning, three of these papers, of some interest to soap and

specialty products manufacturers, are summarized below. Wednesday afternoon was held open for the golf tournament at the New Orleans Country Club and a visit to the Southern Regional Research Laboratory. Thursday morning was given over to a symposium on analytical methods, at which T. H. Hopper, Southern Regional Research Laboratory, presided. The final session on Thursday afternoon was also a business session for presentation of reports and election of officers.

The highlight of the entertainment portion of the meeting was the annual banquet held Thursday evening with J. J. Ganucheau, Southern Cotton Oil Co., New Orleans, as chairman. Results of the election of officers were announced and various awards, golf and door prizes were presented.

Elected as officers for the 1947-48 season were Dr. Milner, president; C. P. Long, Procter and Gamble Co., Cincinnati, first vice president; E. M. James, Lever Brothers, Cambridge, Mass., second vice-president; V. C. Mehlenbacher, Swift and Co., Chicago, third vice-president; L. B. Parsons, Cambridge, fourth vice-president; H. L. Roschen, Swift and Co., Chicago, secretary; and J. J. Vollertson, Armour and Co., Chicago, treasurer. Mr. Vollertson was also honored by being presented a gold key in recognition of thirty-one years of meritorious service to the society. Russell R. Haire, Planters Mfg. Co., Clarksdale, Miss., won permanent possession of the Smalley Foundation Cup, having won for three consecutive years this award for excellence in the analysis of cottonseed and peanut meals.

First low gross in the golf tournament was won by Ray Haddon,



Southern Texas Cotton Oil Co., Houston; second low gross, H. H. Lament, Sharples Corp., Philadelphia; third low gross, F. C. Magne, New Orleans. First low net resulted in a tie among H. S. Mitchell, Swift and Co., W. Argue, Anderson Clayton Co., Houston, and O. E. Wilkins, Woodson Tenent Laboratories, Memphis. Second low net was won by A. A. Kramer, L. A. Salomon and Bro., New York, and third low net was a tie among G. D. Jefferson, Atlas Powder Co., Wilmington; R. C. Stillman, Procter and Gamble Co., Cincinnati; and J. W. Klebs.

Of the many papers presented on various phases of edible oil and meal technology, two papers on oil refining and one on a new antioxidant for fats and oils are of particular interest to processors of both edible and inedible oils and soap makers and are summarized below:

### **SOAP CONTENT OF SOME COMMERCIALY REFINED OILS; EFFECT OF SOAP ON THE BLEACHABILITY OF THE OILS**

**By Wales Newby**

Cotton Products Co., Opelousas, La.

**S**OAP remaining after the alkali refining of vegetable oils tends to reduce the stability of the oils toward breakdown during storage. The sodium soaps also act as nickel catalyst poison, reducing the efficiency of the hardening process. Samples of commercially refined cottonseed and soybean oils, taken after primary and secondary centrifuging, washing and drying and bleaching were analyzed for residual soap content. The results indicate that the soap content of refined cottonseed oil, as it comes from the first stage of centrifugal separation, is probably dependent on the characteristics of the crude oil, and may vary from as little as 0.038 per cent to as much as 0.672 per cent. Soybean oil seems to be somewhat more consistent, running from 0.183 per cent to 0.207 per cent soap at the same stages of processing. A single stage of waterwashing reduces the soap content of all these oils to 0.03 per cent or less, and bleaching in the lab-



**S. O. SORENSON**

S. O. Sorenson, retiring president of the American Oil Chemists Society, is technical director of Archer-Daniels-Midland Co., Minneapolis. He is a graduate of Pratt Institute, Brooklyn, and has been with Archer-Daniels-Midland for over twenty years. He was chairman of the Society's executive committee during 1946-1947, and in the past has served as a member of the refining committee, the advertising committee and the fat analysis committee of the Society.

oratory further reduces this concentration to below 0.005 per cent.

Of two samples of commercially bleached oil examined, one contained 0.004 per cent soap and the other 0.008 per cent. In a plant test, treatment with only a filter aid reduced the soap content of a normal refined soybean oil about as much as did bleaching. The presence of even as much as 0.240 per cent sodium soap in refined oil did not affect the color of the bleached oil produced therefrom, insofar as the Lovibond reading in the Wesson tintometer was concerned. However, when the samples were viewed by reflected as well as transmitted light, there was a noticeable brownish cast in the oil bleached in the presence of excessive soap.

### **A STUDY OF THE CAUSTIC REFINING OF VEGETABLE OILS**

**By Ralph H. Fash**

The Fort Worth Laboratories  
Fort Worth, Texas

**O**ILS are refined to remove free fatty acids, phosphatized color bodies and other materials. The re-

fining oils must be water washed and dried under vacuum, or heat dried and filtered with fullers earth. A departure from batch kettle refining with caustic is the Clayton process in which the caustic and oils are proportioned into a mixing chamber and then through the tubes of a heat exchanger where a break occurs and finally through a centrifuge. Another process makes use of the mist-mixing of the caustic and oils after which they flow down the side of a steam-jacketed vessel to effect a break and are then passed through the centrifuge. This process employs a higher concentration of caustic.

Certain basic principles involved in fatty acid refining account for present-day procedures. In general, the higher the free acid, the greater is the amount of excess caustic required to obtain low color and low refining loss. Reasons for high color and high refining loss are:

- (1) Either too short or too long a mixing time of cold oil-soapstock.
- (2) Too high an oil temperature during initial mixing with caustic solution.
- (3) Too great a concentration of caustic.
- (4) Insufficient excess of caustic.
- (5) Insufficient concentration of caustic solution.
- (6) Too long a heating time before achieving a break.

There are three theoretical concepts that may be considered applicable to refining vegetable oils:

- (1) The color bodies in the oil are of colloid dimension and are positively charged.
- (2) Soap particles formed by caustic neutralization of the free fatty acids are negatively charged and attract the positive color bodies away from the neutral oil into the soap phase.
- (3) Electrically neutral color bodies and other colloid matter are soluble in the oil, the rate of solution and solubility being dependent upon the pH, temperature, time, agitation and materials involved.

The high color of lime and soda ash refined oils is due therefore to the insufficiently high pH of these refining materials and to the fact that an insufficient amount of soap is formed from the neutral oil to offer additional negative charges required to neutralize the major portion of color bodies dissolved in the oil.

The oil occluded in the soap stock is present as a water-in-oil emulsion stabilized by electrically neutral colloidal matter, and also as an oil-in-

water emulsion stabilized by lecithin rather than by soap.

Details of proper procedure to obtain a minimum refining loss were pointed out based on the above concepts. A higher concentration of caustic (on the order of 2 per cent of 20° Baume) is necessary when re-refining oils, particularly cottonseed oil in the absence of emulsion-forming lecithin in order to obtain sufficient negative charges to neutralize the charges on the remaining color suspensions.

In the refining of de-gummed soybean oil the reduction in phosphatide content makes it difficult to obtain sufficient emulsification to incorporate the caustic solution in the soap stock. As a result, the formation of a two-layer soap stock is not infrequent.

In the Clayton process, the caustic concentration in the soap stock is not sufficiently reduced, and oil is occluded in the soap stock because of the relatively rapid heating of the oil-soapstock mix and the rapid separation of the soap from the oil as compared with the kettle process. Also contributing to inconsistent results is the procedure of injecting the oil and caustic in the form of slugs into the flowing stream of the system. This does not offer uniform mixing and distribution, but the difficulties may be largely overcome by placing a mixing chamber in the system after the proportioning pump.

In the mist-mixing process of oil refining, the oil and caustic are mixed as a mist, and because of the enormous interface occurring, a rapid neutralization of color bodies is achieved. The short mixing time requires caustic solutions of greater concentration. About 18 per cent of a 23.9° Baume caustic is used for slow-breaking cottonseed oil and, when sodium silicate is also added, in the case of refining fast-breaking cottonseed oil, in re-refining cottonseed oil, and refining soybean oil, a concentration of 20 per cent 32.1° Baume caustic is used. The very short heating and mixing time involved in the mist-mixing process (1/70th that of the Clayton process) allows for a smaller amount of neutral colloidal matter to dissolve in the oil which in

turn leads to a smaller amount of soap stock dissolved in the oil and a better quality of refined oil. The oil, after being refined in this manner, may be somewhat cloudy upon cooling, but can be clarified by filtration through spent fullers earth or by running it through a clarifying centrifuge. Refining losses may be further reduced by the use of sodium silicate and a good color oil is obtained. The silicate apparently lowers the tendency toward the formation of oil-in-water emulsions in the soap stock.

Because the smaller excess of caustic used and the rapidity of the process, the refining loss obtained with the mist-mixing process is lower than can be obtained with liquid mixing, and the refined oil is cleaner as regards both suspended soap stock and dissolved colloidal material.

The amounts and types of phosphatides present in fast-breaking, slow-breaking, and expeller cottonseed oil, soybean oil and de-gummed soybean oil dictate variations in refining procedure. The neutral oil content of the soap stock obtained from refining these oils depends on the amounts and types of phosphatides present and may be reduced by the use of sodium silicate and by modifications in refining procedure.

### **NOR-CONIDENDRIN: A NEW ANTIOXIDANT FOR FATS AND OILS**

**By G. S. Fisher, Lillian Kyame and W. G. Bickford**

Southern Regional Research  
Laboratory, USDA,  
New Orleans, La.

**A** NEW polyphenolic antioxidant, nor-conidendrin, has been prepared in good yields by the hydrolysis of conidendrin, the parent substance obtained by extraction with a chlorinated solvent of sulfite waste liquors from the manufacture of pulp from the western hemlock. The new substance is similar to two other antioxidants which have been approved for certain food uses, namely, gum guaiac and nor-dihydroguaiaretic acid (NDGA), also polyphenols derived from resinous trees or shrubs.

The antioxidant properties of

nor-conidendrin in concentrations of 0.01% and 0.25% in hydrogenated and unhydrogenated fats and in fatty substrates essentially free from natural antioxidants was studied alone and together with other antioxidants and synergists. Its antioxidant activity in these products is comparable with that of NDGA but not quite as good as hydroquinone. Nor-conidendrin, as well as other polyphenolic antioxidants, exhibits enhanced activity in peanut oil in comparison with other vegetable oils. The new material may be used alone or in combination with acidic synergists such as citric or ascorbic acid. It is effective when added to a fat before or after deodorization and contributes no objectionable odor, color, or flavor to the finished fat. It is, however, quite soluble in water because of its lactone ring.

### **Color of Cottonseed Oil**

Pigmentation of crude cottonseed oils depends principally on the pigmentation of the original seed and the moisture content of the seed during cooking. Crude-oil pigments differ from gossypol, but like gossypol, they are largely removed during alkali refining. Alkali-refined hydraulic-pressed oils contain two to three pigments originally present in the crude oils, while the alkali-refined screw-pressed oils contain these same pigments as well as a large number of decomposition products of the principal crude oil pigment. C. H. Boatner, C. M. Hall, R. T. O'Connor, L. E. Castillon, and M. C. Curren. *J. Am. Oil Chemists' Soc.* 24, 97-106 (1947).

### **Oxidation Rates**

The rates of autoxidation of oleic acid and a number of other unsaturated acids and esters were studied by oxygen uptake and compared with the rates of enzymatic oxidation of lipoxidase substrates. The increase in the number of double bonds in a fatty acid by one, increases the rate of oxidation of the fatty acid or its esters by at least a factor of two. Acids oxidize more rapidly than their esters. R. T. Holman and O. C. Elmer. *J. Am. Oil Chemists' Soc.* 24, 127-9 (1947).



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### Puritan Expands

Puritan Co., Rochester producer of soap products, is constructing a new \$350,000 plant in Rochester and plans to enter the organic chemicals field. Alexander Beach is president and treasurer, and John F. Bush, Jr., is vice-president and general manager.

### Reduces Soap Price

The Harris Soap Division, Hygrade Food Products Corp., Buffalo, announced in mid-May a further reduction of \$2.00 a case in the wholesale price of its all-purpose household granulated soap. This second reduction made by the Buffalo soap firm brings the wholesale price of the product to the pre-war or old ceiling level according to the company. The new price will be \$4.90 for a case of 2 dozen 24-oz. cartons.

### Liqua-Zone Co. Builds

Liqua-Zone Co., San Jose, Calif., recently announced plans for the construction of an additional building for the manufacture of "Liqua-Zone," the company's all-purpose liquid soap.

### L.A. Soaper Fined

Laurence K. McCalla, McCalla Soap Co., Los Angeles, was recently fined \$8,952.65 for using fats and oils in converting bulk soap to soap powder without a priority. The fine was the exact amount of profit as shown by his books.

### Industrial Elects Shapiro

Harry G. Shapiro was elected vice-president and general manager of Industrial Soap Co., St. Louis, in mid-May. Mr. Shapiro had been connected with the Procter & Gamble Distributing Co. sales department for 28 years. The Industrial Soap Co., organized in 1932, is one of P&G's wholesale dis-

tributors for oil soap, special brands and industrial department items. They are also distributors for E. I. Du Pont



HARRY G. SHAPIRO

tributors for oil soap, special brands and industrial department items. They are also distributors for E. I. Du Pont de Nemours & Co. specialty division, S. C. Johnson Wax Co., and Buckeye Soda Co., among others. The company plans to push its new liquid quaternary ammonia bactericide, "Ternol," which will be compounded with alkyl aryl sulfonate for hand dishwashing, and to expand the marketing of its "Zyfo" soap granules, "Lorraine" toilet soap, "Metone" brand cleansers, polishes and waxes, "Medlex" drain-pipe cleaner, "Bolivian" cleanser and "Wellington" brand liquid and oil soap.

### New White King Detergent

The White King Soap Co., Los Angeles, recently introduced a new detergent, "Merrill's Rich Suds," which it will promote first by means of a sampling campaign in Los Angeles and later distribute throughout the west.

### Metal Cleaning Data

A folder offering facts and figures on metal cleaning has recently been issued by Nielco Laboratories, Detroit. Copies are available.

### PSA Chicago Meeting

A meeting of the Potash Soap Association was scheduled to be held in Chicago June 12th at the Morrison Hotel as we went to press. Among the topics to be discussed by the various committees were the combination of potash soap with synthetic organic detergents, performance of synthetic organic detergents as used in the potash soap field, clarity of liquid soaps and shampoos, the use of fractionated fatty acid raw materials as well as the preparation of specifications for potash soap materials, the adoption of an association seal of authorization, and the publication of a textbook on potash soap products. It was announced that no action would be taken on the topics discussed except as the association members may finally decide.

### BIMS Change Golf Date

BIMS of New York have moved the date of their June golf tournament at the Knoll Golf Club, Boonton Manor, N. J., from Tuesday, June 24th, to Thursday, June 19th, according to a report from Martin F. Schultes, chairman of the New York "Buyers, Importers, Manufacturers, and Salesmen" group. The BIMS held their first golf meeting of the season May 27th at the Wykazyl Country Club.

### Eagle Soap To Be Sold

Benjamin Simon, who has directed the operations of Eagle Soap Co., Brooklyn, for the past twenty years, is retiring from business because of poor health, and has announced that the company will be sold. The Eagle plant is located at 205 Navy St., Brooklyn. It will be sold complete, or offers will be considered for the equipment and plant separately. The company has manufactured potash soaps and laundry soaps.

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### Detergent in Capsule Form

Sugar Beet Products Co., Saginaw, Mich., has developed a new soapless detergent, known as "Capsuds," which is offered in capsules containing two grams each, to be dissolved in hot water. Consumer packages contain 15 capsules to the box. Testing has been under way in Saginaw, with promotion through local newspapers and the radio. Decision on plans to expand the market are to be made soon.

### Form Cleveland Sales Club

Chemical salesmen of the Cleveland area recently formed a club for social and educational purposes similar to the Salesmen's Association of the American Chemical Industry, New York. Meetings will be held the first Monday of each month at the Midway Club. Officers for the group named at the initial meeting were:—president, C. A. Kleinhans, Solvay Sales Corporation; vice-president, R. D. Kane, Innis, Speiden & Co.; treasurer, Charles Blazier, McKesson & Robbins, Inc. and secretary, Carl Byron, American Cyanamid Company.

Heading the various committees for the organization are:—R. D. Kane, Innis, Speiden, membership; I. C. Purrenhage, E. I. du Pont de Nemours & Company, entertainment; L. E. Weitz, Chemex Supply Corporation, legal, and A. F. Smith, Westvaco Chlorine Products Company, publicity.

### NPVLA Appoints Battley

Brig. Gen. Joseph F. Battley was recently appointed executive assistant to Ernest T. Trigg, president of the National Paint, Varnish and Lacquer Association, New York. Gen. Battley was loaned by the Army to NRA in 1933, serving as administrator of the chemicals division. He was administrator of the soap code as well as the codes for paint, rubber, paper and chemicals in general.

### Chem. Market Assn. Meets

The annual meeting of the Chemical Market Research Association was scheduled to be held at the Hotel Biltmore, N. Y., on June 5. Following a business session in the

afternoon, dinner speakers were to include S. J. Flink, chairman, Department of Economics, Rutgers University School of Business Administration, speaking on "The Economic Outlook."



**QUICKEE CLEANER** — Quickee Waterless Hand Cleaner, a new product formulated particularly for use on tender skins, is put up in tube form and is formulated with lanolin and vegetable oils. It is manufactured by Tudor Chemical Specialties, Inc., New York.

### Market Milkstone Remover

"Pennclean," a new product for the removal of milkstone from dairy utensils and dairy equipment, was recently announced by the B-K Sales Division of Pennsylvania Salt Manufacturing Company, Philadelphia. The new product has a phosphoric acid base with the addition of a wetting agent and an inhibitor to prevent corrosion of metals used in the dairy industry. It is being sold in quart and gallon glass bottles.

### Ernest Vetterlein Dies

Ernest Vetterlein, secretary of Norda Essential Oil & Chemical Company, New York, perfuming materials, died May 8th following a heart attack. Mr. Vetterlein was 57 years old and had been connected with Norda for 13 years. Prior to that time, he was employed by P. R. Dreyer Inc. Mr. Vetterlein is survived by his widow and a daughter, Jean.

### Supervises "Breeze" Sales

R. Craig Campbell has just been named field supervisor in charge of sales of "Breeze," Lever Bros.' new synthetic detergent. Mr. Campbell has been with Lever Bros. since 1936, leaving the company for four years during the war for service in the army. Upon his return in 1945, he was assigned to the supervisory staff of the Boston division where he worked until his present assignment.

### Unexcelled Appoints Lee

Among new directors recently elected to Unexcelled Chemical Corp. was Alan Porter Lee, president of Alan Porter Lee, Inc., consulting engineers, New York. He succeeds Thomas Jardine who will hereafter act in a consulting capacity.

### Tom McCarthy Dies

Thomas S. McCarthy, managing editor since 1945 of the *Oil, Paint and Drug Reporter*, New York, died May 9th, in Brooklyn, after an illness of a few weeks. He was a graduate of Villanova College and did graduate work at the University of Pennsylvania, later entering the newspaper field as a reporter for International News Service, *The Philadelphia Record*, *The Philadelphia Evening Bulletin*, and the New York News Bureau before he joined the trade publication in 1930 as market reporter. Mr. McCarthy was a member of the Chemists' Club and the Salesmen's Association of the Chemical Industry.

### Market New Hand Cleaner

Spectrome Co., New York, is marketing a new hand cleaner "Highlite" designed particularly for use by mechanics, printers, etc. A  $\frac{3}{4}$  lb. can of the new product sells for 50c and is said to be enough for one hundred applications.

### Forster Becomes Allondon

René Forster Co., New York aromatic chemicals and essential oils house, announced May 1st a change in name to Allondon, Inc., with René Forster as president and the same staff. Their new offices are at 66 Day Street.



### Soap Output Continues Gain

The soap supply situation continued to improve during the first three months of 1947, according to the quarterly sales census reports issued early in May by the Association of American Soap & Glycerine Producers. The consumer had more soap during this period than in any corresponding period since June, 1945, it was stated. Total sales for the first quarter 1947, not including liquid soaps, reached 678,379,000 pounds. This was 62,022,000 pounds, or 10.1 per cent more than sales during the first quarter of last year and an increase of 75,413,000 pounds over the fourth quarter of 1946. Sales of liquid soap during the first quarter of 1947 amounted to 967,655 gallons. A comparison of sales by companies reporting since January 1, 1935, showed an increase of 6.6 per cent for the last quarter over the corresponding quarter of 1946.

### McCutcheon Laboratory

John W. McCutcheon, consulting chemist, New York, has announced the establishment of a new laboratory at 367 East 143rd St., New York, and the association of Julius Simon with the laboratory. Headquarters for Mr. McCutcheon's consulting activities continue at 475 Fifth Ave., New York.

### Set Interim Copra Quotas

An interim allocation recommendation covering 1947 copra from the Philippines was announced recently by the International Emergency Food Council. The recommendation authorizes any recipient country with a tentative annual allocation of not more than 12,000 metric tons (oil equivalent) to lift the entire quantity, and recipients with a tentative annual allocation of more than 12,000 tons to lift 55 per cent of such allocation. The recommendation is based upon the first estimate of Philippine copra production for 1947, but production may exceed early expectations, consequently the revision of the 1947 allocation recommendation now being made for all fats and oils probably will include

an upward revision in the estimate of Philippine copra production. Tentative allocation for the year to the United States is 199,000 metric tons including 3,000 tons transferred from Poland for crushing.

### Oronite Elects Langsdorf

Election of Gaynor H. Langsdorf as vice-president and director, in charge of production and processes,



G. H. LANGSDORF

for Oronite Chemical Co., San Francisco, was announced May 7th. Mr. Langsdorf has been manager of technical services in the manufacturing department of Standard Oil Co. of California, Oronite's parent company. He will be responsible for activities relating to manufacturing, research and production development. Mr. Langsdorf obtained his M.S. degree in chemical engineering at M.I.T. and joined Standard's manufacturing department in 1934.

### Luckman Stresses Education

Charles Luckman, president of Lever Brothers Co., Cambridge, Mass. recommended the "elimination of summer vacations, the establishment of college classes on a three-shift, 52-week basis, the creation of labor-management schools, and a minimum annual salary of \$3,000 for members of the teaching profession," in a speech, May 15th, opening the installation ceremonies of Dr. George Dinsmore Stoddard as tenth president of Univ. of Illinois of which Mr. Luckman is an alumnus.

### Cosmetic Chemists Meet

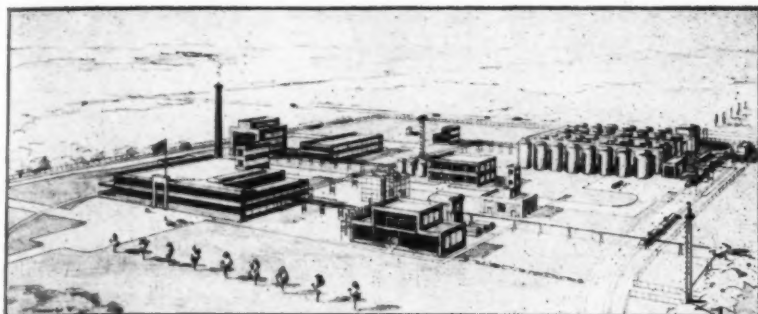
The third semi-annual meeting of the Society of Cosmetic Chemists was held at the Biltmore Hotel, New York, on May 13, 1947, with Dr. Emil G. Klarmann, Lehn & Fink Products Co., Bloomfield, N. J., president of the society, presiding. The meeting was well attended, with the registration running well over 125. Seven technical papers were presented. M. J. Suter, president, Eugene, Ltd., Brooklyn producers of machines and formulations for permanent waving and of hair preparations, spoke on "Chemistry in Permanent Waving-Past, Present and Future". Dr. Eugene F. Traub, New York dermatologist, talked on "The Dermatologist Looks at the Hair Problem". Raymond E. Reed, Raymond Laboratories Inc., St. Paul, discussed, "Permanent Waving of Human Hair: The Cold Process", Dr. Max Goldzieher, New York endocrinologist, presented a paper on "The Use of Hormones for Cosmetic Purposes", and Dr. L. W. Hazleton research consultant, Falls Church, Va., read a paper on "The Pharmacology of Chemical Irritation". "Studies on the Permeability of the Skin of the Rat and Rabbit to Mercury" were presented by Dr. Edwin P. Laug, Food & Drug Administration, USDA, Washington, and Dr. T. H. Rider, technical director, Pepsodent Division, Lever Brothers Co., Cambridge, Mass., spoke on "Flourine and Dental Caries." According to M. G. DeNavarre, Detroit cosmetic chemist consultant, the papers will be published in detail in an early issue of the *Journal of the Society of Cosmetic Chemists*. No date has yet been set for the fall meeting, at which time officers will be elected.

### Polak & Schwarz Expand

Polak & Schwarz, Inc., New York manufacturers of essential oils, aromatics and perfume compounds, announced in May the expanding of their midwestern offices, laboratory and warehouse in Chicago. The midwestern division will be under the management of George W. Liddell. The company recently opened branch offices in Buenos Aires and Rio de Janeiro.



## Swift to Build Fatty Acid Plant



**S**WIFT & CO., Chicago, announced plans late in May for the erection of a fats and oils processing unit at Hammond, Indiana. The new facilities of the technical products plant will pioneer the development of fractions from animal, vegetable and marine oils obtained by the new "Solexol" process, recently introduced by the M. W. Kellogg Co., Jersey City, N. J. (*Soap & Sanitary Chemicals*, December, 1946, p. 75). The process physically separates glyceride oils into fractions differing in molecular weight and structure.

Contracts for the design and construction of three different units, for processing various fatty oils and mixtures of fatty acids, have been awarded to the Kellogg Co. The industrial oil unit will be constructed on part of a 70-acre site owned by the company and is expected to be completed in 1948.

One unit, designed principally to decolorize glycerides and fatty acids, will accomplish this with a high yield of products for soap manufacture. The same plant is also designed to operate on crude linseed oil and, by concentrating the color bodies and other undesirable anti-oxidants into a small fraction, to produce exceptional yield of high quality linseed oil. Soybean and other oils are also planned as alternate and successive raw materials in operation of this unit. Another unit, a destearinizing plant, will separate both glycerides and fatty acids into stearine and a clear oil of low pour point.

Stearine will be solidified by chilling, using the solvent itself as the refrigerant, and then separated by filtering in special continuous rotary filters.

The third unit is a plant equivalent in detail and scope to the first two units but scaled down to 1/200 of their size. It will be used to exploit and develop operating conditions for the larger units and may also be used to produce high potency vitamin concentrates.

The Blaw-Knox Co., Pittsburgh, will build facilities for the extraction of glycerine from fat and oil by a continuous process.

The techniques employed in these newly developed processes are expected to lead to the development of several new oil products for industrial use. Improved quality of present products and better economies in processing of fats and oils are said to be other advantages. Foods, soaps, vitamins, paints, printing inks are a few of the products for which Swift's new facilities will supply raw materials. All three units will be highly instrumented and automatic in operation. The process itself is simple, continuous and unique in that it employs no temperatures as high as the boiling point of water.

### Joins Consumers Supply Co.

Laurance G. Dennis recently joined Consumers Supply Co., Detroit distributors of soaps and sanitary

supplies. Mr. Dennis was formerly associated with the Acme Packing and Supply Co., Detroit.

### Beauchamp Lueders V. P.

Wilfred F. Beauchamp, who is in charge of the Montreal branch of George Lueders & Co., New York, essential oils, has just been elected a vice-president of the company. Mr. Beauchamp has been connected with the Lueders company for twenty-three years.

### Advices on Packaging

"Don't sell your package short" is the advice of G. S. Denning, vice president in charge of sales for W. C. Ritchie & Co., Chicago manufacturers of set-up boxes. Business is now entering a highly competitive market, wherein any package must compete with thousands of others, Mr. Denning pointed out, in an address at the 2nd annual Industrial Packaging and Materials Handling Conference in Chicago, April 29. The package, he said, is the means of conveying the manufactured product to the consumer and it is not the part of wisdom to save a few pennies by sacrificing quality.

"Plan your package," Denning continued, "so that it is convenient to handle, easy to display, dispenses your product readily and is of the proper unit cost. But, above all, make it a selling package—one that arouses interest and a desire to possess; in short, one that has eye appeal."

Women purchase 75 per cent of consumer goods, Mr. Denning reminded, and surveys have shown that 62 per cent of their purchases are unplanned when they enter the store. "This means," he added, "that three of every five articles purchased are selected by the buyer when seen in the store. Can you think of a better reason for having a good package, with plenty of eye appeal?"

### Visits MEM Vienna Plant

Paul M. E. Mayer, president of the MEM company, New York, sailed May 31st to visit various European centers including Vienna, the location of the original MEM soap

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factory. Before leaving, he announced that the Vienna plant is now ready for production and is expecting its first shipment of raw materials in two years. Prior to the war, MEM soap was imported from Vienna by the United States and other countries. In recent years it has been manufactured in the United States.

#### **P & G Leads in News Ads**

Procter & Gamble Co., Cincinnati, was the leading advertiser in newspapers last year with an expenditure of \$3,723,937. Colgate-Palmolive-Peet Co., Jersey City, was a close second with \$3,665,763. Lever Brothers Co., Cambridge, spent \$1,641,240.

#### **Expands Detergent Output**

Facilities for production of detergents will be increased by the expansion of the Buffalo plant of National Aniline division of Allied Chemical & Dye Corp., New York. The expansion, which it is estimated will cost between \$20,000,000 and \$30,000,000, is the largest to be undertaken since the plant was acquired from the Schoellkopf interests 27 years ago. Production capacity will be increased by several millions of pounds. Warehouses, locker rooms, shops and modern power equipment will be installed and laboratory and research facilities will be expanded.

#### **Target Soap Prices Lower**

Price reductions on all seven grades of "Target" soap powders were announced May 26th by Chemical Manufacturing and Distributing Co., Easton, Pa. Five grades of varying percentages of "Target" soap powder are now on the market distributed in 100 lb. bags, 250 lb. bbls., and 25 and 100 lb. drums. In addition are low and high titre soap powders also packed in bags, barrels, and drums.

#### **Nat. Can Appoints Murphy**

Stephen M. Murphy was appointed district sales manager of National Can Corp.'s western division general line sales, Chicago, late in May. Mr. Murphy has been with National Can Corp. for the past thirteen years.

#### **Cyril Kimball Elected**

The American Section of the Society of Chemical Industry announced on May 12th the election of



C. S. KIMBALL

Cyril S. Kimball, Foster D. Snell, Inc., New York consulting chemists, as chairman for the year 1947-48.

#### **Milwaukee Soap Survey**

The new 1947 consumer analysis of the Milwaukee market area, prepared annually by the *Milwaukee Journal*, Milwaukee, has recently been issued and copies are available through the *Journal* office. A complete section of the book is given over to a study of Milwaukee buyer preferences in soaps and cleansers, including toilet and bath soaps, soaps for dishes, fine fabrics, household laundry, walls, floors, woodwork, etc., synthetic detergents, water softeners, scouring cleansers, etc. Another section of the report covers toiletries and includes a report on the Milwaukee market for shaving cream, tooth paste and powder, shampoos, etc.

In the survey of synthetic detergents sales it is reported that this year some 43.7 per cent of Milwaukee housewives are users of such products as compared with 25.5 per cent a year ago. Leading sellers are "Dreft", reported to be preferred by 55 per cent of all Milwaukee buyers of synthetic detergents, and "Vel," preferred by 44 per cent. This year 36 different brands of synthetic detergents are reported to be on sale in the Milwaukee area. Highest use of these products is said

to be in the top income brackets, where one out of two families are regular users.

#### **Introduce "Plysol"**

The Milburn Co., Detroit, plans introduction soon of a new soapless detergent with high lathering characteristics, according to Geo. M. Cole, sales manager. The product, to be known as "Plysol," will be promoted for specific applications such as removal of aniline inks and dyes from hands of printers and for office workers using hectograph inks. The company also manufactures protective creams and protective clothing.

#### **Drops Price of "Soapine"**

Kendall Manufacturing Co., Lawrence, Mass., has announced another 10% price reduction on its product, "Soapine", the second such price cut in the past month. This latest price change, announced by Gordon R. Fulton, Kendall president, brings the price of this granulated soap product down to 29c. Price prior to April 24 was 35c.

#### **New Synthetic Detergents**

General Aniline & Film Corp. is reported to be expanding distribution of two new synthetic detergents, "Chat" and "Glim", that have up to this point been sold in test areas only. "Chat" is designed specially for use in mechanical dishwashers, while "Glim" is for regular dishwashing use.

#### **Solvay Moves in N. Y.**

The New York branch office of Solvay Sales Corp., manufacturer of alkalies, has been relocated at 43 Exchange Place. Executive offices of the corporation remain at 40 Rector St. The New York sales office serves southern New York, Long Island and New Jersey.

#### **Houghton Joins Wright**

Robert L. Houghton, formerly with Lever Brothers Co., Cambridge, Mass., was recently appointed advertising manager of J. A. Wright & Co., Keene, N. H. beauty cream manufacturers.



# MACKENZIE DETERGENTS

## Technical Grade Chemicals

1. Sodium Metasilicate-Pentahydrate.
2. Poly-Phos  
A Super Poly-Phosphate
3. Sodium Sulphate (Glauber's Salts)  
Anhydrous

## Synthetic Soap Powders

1. SPRAY DRIED (Bead Form). Synthetic Organic Detergents with polyphosphates. A COMPLETE PRODUCT ready for packaging.
2. Granular (dense) Synthetic Organic Detergent for Wool Scouring and other industrial uses.

## MIXED DETERGENTS

### Metaplus

Mild general household cleaner for painted surfaces. No wiping or rinsing required.

### Dishwashing Compound

(Pink or White) Built to government specifications for Machine Dishwashing.

### Hand Dishwashing Compound

With or without special GERMICIDE. Requires no wiping. When germicide is included, dishes are sanitized. Germicide is non-toxic, odorless, and tasteless.

### Streakless Car Wash

A new product for washing cars, buses, trucks, etc. Will not streak. No wiping necessary.

### Concentrated Soap Powder

50% less water than regular soap powders. For laundries, institutions, launderettes, home laundering.

### Driveway Cleaner

For cement or wood floors, grease pits, kitchen floors, meat packing plants, etc.

*As basic manufacturers of cleaning chemicals, we have facilities for producing special cleansers for any particular purpose.*

**MACKENZIE LABORATORIES, Inc.**

Front and Yarnall Streets, Chester, Pa.

## Sanitary Chemicals at Chicago Safety Conference

**S**AFETY angles of sanitary chemical products were emphasized by the several manufacturers who displayed their lines at the 24th annual Midwest Safety Conference and Exposition in Chicago, May 5 to 8. Companies participating, with their products and representatives at the booths, were as follows:

Diversey Corp., Chicago; "Electro-Purj-It" cleaning compound and "Quik-Sil," an oil and grease absorbent. S. E. Alvis, sales manager, J. P. Mollis, Ed Millar, E. C. Robson, F. Kramer, R. H. Myers, W. W. Broadbent, J. L. Gardner.

Milburn Co., Detroit, Mich.; "Ply" protective creams and protective clothing. J. A. Stifter, president, and Geo. M. Cole, sales manager.

Q-V Corp., Kalamazoo, Mich.; "Q-V" protective cream. H. D. Manning, sales promotion manager, H. L. Fuller, technical director.

G. H. Packwood Mfg. Co., St. Louis; "Pax" granulated skin cleaners, "Hecto" ink removing cream, soap dispensers. A. J. McLaughlin, assistant sales manager, W. O. Keneippe, H. T. Crane, H. P. Lamping.

Walter G. Legge Co., New York; Non-slip floor treating compounds. Walter G. Legge, president, R. F. McConville, Richard Moreland.

Lightfoot Schultz & Co., New York; Industrial powdered hand soaps, hand lotions, soap dispensers. J. D. Compton, Chicago sales manager, Oscar A. Baddeley.

West Disinfecting Co., New York; "Lan - O - Kleen" protective creams, sulfonated castor oil cleaners for industrial processing use, protective clothing, "Vapo-Mat," new automatic, steam-electric insecticide sprayer. Glen A. Buerki, Chicago district manager, Earl W. Drawbaugh, assistant manager, Arthur Devlin, John Manley, Chas. Albright.

Oil-Dri Corp. of America, Chi-

cago; oil and grease absorbent. L. C. Clark, J. H. Leahy, E. L. Swanson.

Shown in the booth of Cook County Flame Proofers, Chicago, was a product recommended for protection against termites and promoted at the Safety show for its flame-resistant qualities. Manufactured by No Flame Sales Co., Berkeley, Calif., the compound was originally designed solely to prevent termite destruction of mine timbers and its fire-resistant ability was discovered by accident, according to L. S. Martin of the Chicago firm.

### P&G at Medical Meeting

Procter & Gamble Co., Cincinnati, O., occupied a booth at the 107th annual meeting of the Illinois State Medical Society in Chicago last month to show the first four of a series of printed leaflet pads designed for use by doctors in answering questions on routine home care of the sick. Titles were "Instructions for Bathing a Patient in Bed," "Instructions for Bathing Your Baby," "Instructions for Routine Care of Acne," and "The Hygiene of Pregnancy." Additional subjects will be covered in other leaflets now in preparation, according to Mrs. Christyne Schwab, who was in charge of the booth. Every visitor was presented with a full-size cake of "Ivory" soap.

### Kamen Reduces Soap Prices

Price cuts averaging 31.6 per cent on all soap products of Kamen Soap Products Co., New York and Barberton, Ohio, were announced June 3rd by the company, as made possible in part by recent drops in cost of fats and oils.

Largest price reduction to the consumer, stated the company, was a 40 per cent markdown on "Kame-N-Kleen" soap powder. A 30 per cent drop was affected on the company's laundry bar and 25 per cent on "Kamenol," a granulated soap bead.



ROBERT P. BEAVEN

### Beaven Joins Rumford

Appointment of Robert P. Beaven to its technical service staff was announced by Rumford Chemical Works, Rumford, R. I., late in May. Mr. Beaven will handle technical service problems both in the laboratory and in the field. He graduated from Rhode Island State College as a Bachelor of Science in chemistry and also studied at Worcester Academy and Lowell Textile Institute. During five years of Army service he rose from private to captain, serving with the 63rd infantry division and spending 22 months in Europe.

### Reduce Detergent Prices

Seaboard Distributors, Inc., Newark, recently reduced prices on their "Mecol ST" bead and 85 to 87 per cent active flakes. Metallic soaps had previously been lowered 4 cents per pound by another factor, Warwick Chemical Co., West Warwick, R. I.

### ADCA June Golf Outing

The Allied Drug and Cosmetics Association of Michigan will hold its second golf outing of the season at Birmingham Country Club on Tuesday, June 27th. This outing will be called "Jeff Snider Day" in honor of Jeff Snider, member and past president of the association. Mr. Snider is leaving Detroit to open offices in Louisville for Commercial Solvents Corp. ADCA of Michigan will be host to the Chicago and St. Louis groups at a tri-city golf date on June 24th.

MAYPON The Improved Lamepon • MAYPON The Improved Lamepon

**for sudsing and  
deterging purposes...**

**MAYPON SUPER K**

and  
**MAYPON K**

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Household  
and  
Industry

USE...  
**MAYPON**  
(THE IMPROVED LAMEPON)  
PROTEIN - FATTY ACID - CONDENSATION PRODUCT

**MAYPON 4C**

for  
Cosmetics

*produced only by*  
**MAYWOOD CHEMICAL WORKS**  
MAYWOOD, N. J.

Samples  
and  
Literature

MAYPON The Improved Lamepon • MAYPON The Improved Lamepon



### **CSA Hears Sockman**

The Salesmen's Association of the American Chemical Industry, New York, met for lunch, May 20th, at the Roosevelt Hotel, New York. Principal speaker of the occasion was Dr. Ralph W. Sockman, National Radio Pulpit Hour lecturer, who spoke on the "Iron Curtain" and other observations of his tour in Russia as guest of the Soviet Red Cross. The first CSA golf tournament of the current season is being held at Huntington Crescent Club, Huntington, L. I., June 12th. Other golf dates for this season are: Thursday, July 17th, The Knoll Club, Boonton, N. J., Thursday, Aug. 14th, Winged Foot Golf Club, Mamaroneck, N. Y., and Thursday, Sept. 18th, Essex Fells Golf Club, Essex Fells, New Jersey.

### **Honor P&G Radio Shows**

In connection with National Family Week, May 4 to 11, the Inter-council Committee on Christian Family Life honored three radio programs sponsored by the Procter & Gamble Co., Cincinnati. Awards for meritorious portrayal of American family life were made to the programs: "Life Can Be Beautiful," "Pepper Young's Family," and "Ma Perkins."

### **Army Dishwashing Machine**

The Quartermaster Corps, U. S. Army, recently announced its interest in the development of a mechanical dishwashing machine suitable for use in the Army mess, and is soliciting information and suggestions from public health officials, governmental agencies, and the industry with respect to the specifications for such a machine.

### **Shell Expands "Teepol"**

Expansion of the Stanlow Plant of Shell Chemical Manufacturing Co., Ltd., at Cheshire, England, will increase the annual production of "Teepol" detergents and wetting agents from 12,000 tons to 24,000 tons, it was recently announced. The "Teepol" plant is the only one of its kind owned by Shell and it produces higher alkyl sulfates based on the vapor phase cracking of wax to produce

higher molecular weight olefines from which the detergents are synthesized. It is planned to increase the output of detergents and wetting agents for industrial and domestic use up to 50,000 tons by 1949.

### **DCAT Spring Meeting**

The Drug, Chemical and Allied Trades Section, New York Board of Trade, recently announced the date of Wednesday, June 25th, for their spring luncheon meeting at the Hotel Pennsylvania, New York. At the April meeting of the DCAT executive committee it was decided to change the date of the annual meeting and election to the 4th Thursday in September of each year. This change permits the holding of the section's annual meeting and election at the same time as the fall meeting and golf tournament. As previously announced, the date this year will be September 25th and 26th at Shawnee Inn, Shawneeton-Delaware, Pa.

### **Hodges Buys Out Firm**

Theodore W. Hodges recently announced the purchase of the interest of his recently retired partner, Alpheus E. White, in the firm of White and Hodges, Everett, Mass. The company specializes in the manufacture of oil and greases for the leather and textile industries. The firm name, White and Hodges, is being retained under Mr. Hodges' sole ownership.

### **Bon Ami Appoints Swann**

The Bon Ami Co., New York, recently announced the appointment of Dr. Ralph C. Swann as director of its research department. Dr. Swann, a graduate of M.I.T., was formerly with the Americal Mineral Spirits Co. and the Pure Oil Co. He will be located at the company's research laboratory at New York.

### **Lectures on Synthetics**

Dr. Cornelia T. Snell, Foster D. Snell, Inc., New York consulting chemists and engineers, gave the annual Marie Curie lecture at Pennsylvania State College on May 5th. Her subject was "Synthetic Detergents and Surface Activity."

### **Prep Plant Expands**

Two new sections of the plant of Mark Allen Co., Detroit manufacturers of "Prep" shave cream, will soon be completed and will triple the capacity for the production of "Prep" and associated products. To simplify anticipated further expansion the company has been converted from a partnership to a corporation. The company name, management and ownership remain the same except that four of the younger executives under the partnership have been named as officials of the corporation as follows: Richard W. Allen, secretary; G. L. Copeland, assistant secretary; F. W. Darling, treasurer; and Thomas C. Kipley, assistant treasurer.

### **Westvaco Shifts Salesmen**

Westvaco Chlorine Products Corp., New York, recently announced changes within its sales organization. D. C. Oskin, formerly district sales manager at Detroit for the company, joined the headquarters sales staff, New York, June 1st as divisional sales manager in charge of alkali and chlorine sales. A. L. Crane, who has been a sales representative in New York and Chicago for the past three years, will replace Mr. Oskin at Detroit. W. L. Sager, formerly Westvaco sales representative for bulk chemicals in Brooklyn, will join the agricultural chemicals division, New York. Charles H. Tidwell also joined the agricultural chemicals division of the company after his release from service and will be located in Orlando, Fla.

### **Fritzsché Opens in Dallas**

Plans for the opening of a new branch office in Dallas, Texas, were recently announced by Fritzsché Bros., Inc., New York. In charge of the new Dallas office will be Charles H. Milton, Jr., who for some years past has been active in the New York firm's New England territory and was a member of the BIMS of Boston. The new branch office will serve the entire state of Texas as well as Oklahoma, Arkansas, Louisiana and Mississippi. Mr. Milton's former accounts will be handled, for the present, by M. J. Miles, manager of the Boston office.

***American Made***  
***by***  
**GEORGE LUEDERS & CO.**

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The following trade - marks were published in the May issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

### Trade Mark Applications

**VACUUM CRYSTALS**—This in upper case, extra bold letters for dry detergent preparation. Filed Feb. 26, 1945 by International Chemical Co., Chicago. Claims use since July 1, 1932.

**MEROLAX**—This in upper case, extra bold, black letters for compound for detarnishing silver. Filed Jan. 17, 1946 by Ralph Mernit, Inc., New York. Claims use since Jan. 1, 1938.

**GALLIVANTING**—This in upper and lower case, open, script letters above the drawing of a high hat, cane, and bouquet for soap. Filed July 16, 1946 by Affiliated Products, Inc., New York. Claims use since July 5, 1944.

**J-P-S**—This in upper case, reverse letters upon a semi-circular background for detergent for use in dry cleaning. Filed July 18, 1946 by R. R. Street & Co., Chicago. Claims use since Jan. 2, 1929.

**STATICOL**—This in upper case, reverse letters upon a semi-circular background for detergent for use in dry cleaning. Filed July 18, 1946 by R. R. Street & Co., Chicago. Claims use since July 1, 1946.

**ORTHOGUARD**—This in upper case, bold letters for insecticides and germicides. Filed Apr. 16, 1946 by California Spray-Chemical Corp., Wilmington, Del. Claims use since Mar. 22, 1946.

**YOUTHCRAFT**—This in upper and lower case, bold letters above the fanciful representation of a girl's head for shampoo. Filed May 8, 1946 by Murphy Laboratories, Inc., Upper

Darby, Pa. Claims use since Apr., 1944.

**STARCO**—This in upper case, extra bold, black letters for hair shampoo, disinfectant, etc. Filed May 9, 1946 by Star Chemical Co., San Antonio, Tex. Claims use since 1931.

Drawing of a skyline characterized by minarets, crescents, etc. for mothproofing composition in liquid form. Filed May 17, 1946 by Royal Chemical Products Co., Troy, N. Y. Claims use since July 1, 1938.

**SAXON KNIGHT**—This in upper case, bold letters, one word above the other for shampoo. Filed July 8, 1946, by Royal Pharmacal Corp., Brooklyn. Claims use since June 1, 1946.

**TRICLANE**—This in upper case, open and shadow letters for insecticide. Filed Aug. 2, 1946 by Woodfolk Chemical Works, Ltd., Fort Valley, Ga. Claims use since Sept. 1945.

**EZ**—This in upper case, bold letters, which with the word "Pak" appear within a circle, around the outer edge of which and within another concentric circle are the words "Stewart's Concentrated Cleaning Products" for a general purpose cleaner. Filed Feb. 28, 1944 by Fred P. Stewart, Miami Beach, Fla. Claims use since Feb. 20, 1943.

**SPIFFIT**—This in upper case, extra bold, black letters for cleaner for pots and pans, painted surface and woodwork. Filed Feb. 7, 1946 by Victory Enterprises, New York, Nov. 10, 1945. Claims use since Nov. 10, 1945.

**TIDY-DIDY**—This in upper case, extra bold, black letters for cleaner for diapers, clothes and other fabrics. Filed Feb. 7, 1946 by Victory Enterprises, New York. Claims use since Nov. 10, 1945.

**"C-Ro"**—This in upper case, bold letters for metallographic polishing compound. Filed Feb. 28, 1946 by Marwin Co., Caldwell, N. J. Claims use since Nov. 1, 1945.

**FINA FOAM**—This in upper and lower case, open, script letters for cleaner for rugs, upholstery, etc. Filed Mar. 12, 1946 by Earl Grissmer Co.,

Anderson, Ind. Claims use since Feb. 7, 1946.

**FOR BABY DEAR**—This in upper case, open letters on a pennant-type background for soap. Filed Apr. 23, 1946 by Helene Pressl, Inc., New York. Claims use since May, 1942.

**OKAZE** — This in upper and lower case, extra bold letters for preparation for cleaning dentures. Filed June 4, 1946 by Staze, Inc., New York. Claims use since May 1, 1946.

**INSTA-BRITE** — This in upper and lower case, bold, script letters for suspension mixture of soap, abrasive and oil for cleaning grease and removing rust. Filed June 18, 1946 by J. Duffy, New York. Claims use since June 3, 1946.

**MANI-KLEEN**—This in upper case, medium letters for display fixture cleanser. Filed July 1, 1946 by Bontec Laboratories, Pomona, Calif. Claims use since June 1, 1940.

**EDJOL** — This in upper and lower case, bold letters above the fanciful drawing of a man in an apron for pine oil disinfectant and insect spray liquid. Filed Dec. 13, 1945 by J. E. T. Pharmacal Co., Allentown, Pa. Claims use since 1912.

**GOLD-I-CIDE**—This in upper case, bold letters for germicides and fungicides. Filed Dec. 15, 1945 by Goldicide Laboratories, New York. Claims use since Oct. 23, 1945.

**MIST-O-MIZER**—This in upper case, bold, italic letters for insecticide dispensers. Filed Feb. 12, 1946 by Regal Chemical Corp., Brooklyn. Claims use since Dec. 6, 1945.

**DEL**—This in upper case, reverse letters on a rectangular background for insecticidal shampoo. Filed Mar. 6, 1946 by Chemical Specialties Co., New York. Claims use since June, 1944.

**FARMCRAFT** — This in upper case, extra bold, black letters for insecticides. Filed June 17, 1946 by Farmcraft, Inc., Portland, Oreg. Claims use since May 31, 1946.

**PERIPHENYL** — This in upper case, medium letters for liquid and powder insecticides. Filed July 2, 1946 by Western Exterminating Co., Newark, N. J. Claims use since Jan. 10, 1946.



## TECHNICAL SPECIALTIES

**M**ORE and more, the application of odoriferous principles as a means of neutralizing or "blanketing" the unpleasant and sometimes offensive odors which characterize certain commercial products is becoming a merchandising factor of measurable consequence. Obviously this use of aromatics in so-called technical products differs from their use in perfumery in that the problem is *not* one of creating an aesthetic appeal, necessarily, but rather one of modifying an undesirable quality. And since the profit margin on most technical preparations is small, a major consideration in the selection of a deodorant is its economical coverage of the product's objectionable character. This must be as complete and as pleasant as possible and without interference with the operation or purpose for which the product is intended.

It has been found that certain of the cheaper or stronger essential oils—or their imitations, and sometimes even straight aromatic chemicals, fulfill this purpose quite effectively. But after years of research and co-operation with the manufacturers of many of our country's leading technical products, the conclusion seems well established that no single oil or chemical will give as complete and satisfactory coverage per dollar spent as will a compound designed specifically for a definite technical use. For this reason, the manufacturer's best procedure before adopting any one masking or odorizing agent is to have his product subjected to careful laboratory observation in order to determine the most effective and least costly means of accomplishing the desired results. Every product represents a separate and distinct problem and should be treated as such.

The accompanying list of Technical Specialties suggests but a few of the many possible products and applications wherein the neutralization or re-odorization of unpleasant odor effects is being achieved economically through the use of specially prepared, low cost aromatic compounds.

### ALDAROMES (Formaldehyde Perfumes)

These are concentrated perfume combinations designed for masking the odor of formaldehyde. They are directly and clearly soluble in 40% formaldehyde solution and have excellent stability against the formaldehyde itself as well as the other chemicals generally employed in products such as embalming fluids and deodorant sprays.

- ALDAROME BOUQUET #123 A fruity effect.  
 ALDAROME BOUQUET #124 Heliotrope type.  
 ALDAROME BOUQUET #125 Fruity character.  
 ALDAROME BOUQUET #126 A sweet, vanillin type.  
 ALDAROME JASMINE #24  
 ALDAROME LAVENDER #25 } These are good reproductions of their respective flowers.  
 ALDAROME LILAC #23...

### CLEANING FLUIDS and NAPHTHAS

- DEODORANT #12 ..... Powerful covering agent, somewhat fruity. Very effective.  
 DEODORANT #13 ..... Lilac base, topped with a diffusive, fruity character.  
 DEODORANT #14 ..... Pine base with a pronounced top-note.

### PAINTS and LACQUERS

- PAINT DEODORANT #5 ..... Vanilla type; very effective.  
 PAINT DEODORANT #5 ..... A convenient, dilution of the above concentration.  
 LIQUID

### GENERAL DEODORANTS

- BOUQUET #149 ..... A sweet, strong vanilla type.  
 DEODORANT #9 ..... A powerful, diffusive, covering type.  
 JAVOLLAL ..... An effective substitute for citronella. Imparts a cleaner, finer, more appealing odor to insecticides, disinfectants and technical mixtures.  
 NEUTROLEUM ALPHA ..... } These are among the most widely used deodorizing materials. They neutralize and perfume at very low cost. Also useful in all preparations based upon petroleum distillates.  
 NEUTROLEUM GAMMA ..... }  
 SAFRELLA ..... This is a low priced substitute for artificial sassafras which it resembles closely in odor and strength. It is used in insecticides, germicides and numerous other technical mixtures.

### PARAPASTELS

This group consists of perfume and color combinations, designed to impart in one operation, agreeable fragrance and pleasing color to products made of paradichlorobenzene or naphthalene.

- |                               |                                 |
|-------------------------------|---------------------------------|
| CARNATION #11 ..... Red       | MINT #8 ..... Green             |
| FRUIT #5 ..... Uncolored      | ORANGE BLOSSOM #32 ..... Orange |
| HAY #8 ..... Uncolored        | ORIENTAL #39 ..... Red          |
| LILAC #29 ..... Lilac color   | PINE #15 ..... Green            |
| LILAC #37 ..... Lilac color   | ROSE #34 ..... Old Rose         |
| VIOLET #12 ..... Bluish green |                                 |

### OTHER APPLICATIONS

We are prepared to consult with and recommend or develop masking agents and re-odorants for numerous other products, such as:

FLY SPRAYS and INSECTICIDES, CUTTING OILS, FUEL and LUBRICATING OILS, LATEX, NATURAL and SYNTHETIC RUBBER PRODUCTS, LEATHER, PLASTICS, PRINTING INKS, STARCHES, TAPE, PASTE or GLUE, TEXTILES, WAXES, POLISHES and SHOE POLISHES, etc.

# FRITZSCHE

## Brothers. Inc.

PORT AUTHORITY BUILDING, 76 NINTH AVENUE, NEW YORK 11, N. Y.

BRANCH OFFICES and STOCKS: Boston, Mass., Chicago, Ill., Los Angeles, Calif., St. Louis, Mo., Toronto, Canada and Mexico, D. F. FACTORIES: Clifton, N. J. and Seillans (Var), France.

**LIFETIME**—This in upper and lower case, extra bold, black letters for tooth powder. Filed July 3, 1946, by F. J. Trump, Stamford, Conn. Claims use since May 7, 1946.

**TAP-SUDS**—This in upper case bold, stencil letters for detergents for general household use. Filed Apr. 21, 1945 by Kem-Stone Products Co., Chicago. Claims use since Aug. 1, 1944.

**SPIFFY-IN A JIFFY** — This in upper case, bold and medium letters, the word "Spiffy" above the words "In a Jiffy", for cleanser for pots and pans. Filed Feb. 7, 1946 by Victory Enterprises, New York. Claims use since Nov. 10, 1945.

**P & P**—This in upper case letters within a circle above a rough ended rectangular drawing for hand cleaner. Filed Apr. 1, 1946 by Pappas and Pavalkos, Albuquerque, N. Mex. Claims use since Feb. 13, 1946.

**P & S**—This in upper case, jumbo and lower case bold letters for lavender shaving bowl containing soap. Filed June 14, 1946 by Associated Merchandising Corp., New York. Claims use since Apr. 5, 1939.

**ARISTON**—This in upper case, bold letters for soaps. Filed June 19, 1946, by Affiliated Retailers, Inc., New York. Claims use since May 10, 1946.

**BAR-F** — This in upper case, extra bold, black letters for cream for polishing and preserving leather. Filed July 3, 1939 by Bar F Products, Chicago. Claims use since May 28, 1946.

A reverse letter f with a tilting line across the lower portion of the perpendicular bar of the letter on a steer's head for cream for polishing and preserving leather. Filed July 3, 1946 by Bar F Products, Chicago. Claims use since May 28, 1946.

A large, lower case letter "f" with a tilting bar across the lower portion of the upright bar of the letter for cream for polishing and preserving leather. Filed July 3, 1946 by Bar F Products, Chicago. Claims use since May 28, 1946.

**FLUOROL**—This in upper and lower case, open letters for tooth powder and tooth paste. Filed Dec. 20, 1945 by Rees and Chapman, Vancou-

ver, British Columbia, Canada. Claims use since Feb. 21, 1945.

**"His Nibs"**—This in upper and lower case, medium, script letters for shampoo. Filed Dec. 21, 1945 by H. R. Sibner Co., New York. Claims use since Dec. 1, 1945.

**DATE NIGHT** — This in lower case, bold letters for shampoo. Filed Mar. 13, 1946 by Nancy Dale, Ltd., New York. Claims use since Jan. 25, 1946.

**CUPROSE**—This in upper case, bold letters for algacide. Filed June 10, 1946 by Cuprose Co., Dallas, Tex. Claims use since Jan. 1946.

**KD**—This in lower case letters for shampoo. Filed June 21, 1946 by Kay Daumit, Inc., Chicago. Claims use since Jan. 10, 1942.

**CHEM-KILL**—This in upper and lower case, extra bold letters for insecticides and insect repellants. Filed Oct. 14, 1946 by Commercial Chemical Co., Gibsonburg, O. Claims use since Oct., 1945.

### Trade Marks Granted

425,733. Clays for use in toothpaste, soaps, etc. Filed by Alosium Products Co., Pittsburgh, Oct. 8, 1945. Serial No. 489,577. Published Sept. 10, 1946. Class 1.

425,742. Soap powder. Filed by Pemberton Products Co., Irvington, N. J., Nov. 10, 1945. Serial No. 491,427. Published Sept. 3, 1946. Class 4.

425,760. Denture cleanser and soaps for toilet, laundry and household use and soap powders. Filed by Colgate - Palmolive - Peet Co., Jersey City, N. J., Dec. 21, 1945. Serial No. 493,660. Published Sept. 10, 1946. Class 4.

425,773. Cleaning and washing powder for electric dishwashing. Filed by Kelite Products, Inc., Los Angeles. Jan. 8, 1946. Serial No. 494,451. Published Sept. 10, 1946. Class 4.

425,794. Dressing, cleaner and polish for shoes, etc. Filed by Knomark Manufacturing Co., New York, Feb. 7, 1946. Serial No. 496,147. Published Sept. 10, 1946. Class 4.

425,800. Soap. Filed by Colgate-Palmolive-Peet Co., Jersey City, N. J., Feb. 9, 1946. Serial No. 496,301. Published Sept. 3, 1946. Class 4.

425,802. Cleaning fluid. Filed by Demand Products Co., San Francisco, Feb. 11, 1946. Serial No. 496,389. Published Sept. 10, 1946. Class 4.

425,803. Washing and cleaning compound. Filed by Blue Ribbon Products Co., San Francisco, Feb. 13, 1946. Serial No. 496,497. Published Sept. 10, 1946. Class 4.

425,805. Liquid soap substitute for cleaning the skin. Filed by Cosmex Corp., New York, Feb. 14, 1946. Serial No. 496,543. Published Sept. 10, 1946. Class 4.

425,814. Synthetic wax intended as replacement for carnauba wax. Filed by Cornelius Products Co., New York, Feb. 28, 1946. Serial No. 497,373. Published Sept. 17, 1946. Class 1.

426,238. Shampoo. Filed by Dara Products, Cincinnati, Nov. 4, 1942. Serial No. 456,635. Published Feb. 15, 1944. Class 6.

426,251. Shampoo. Filed by Sardeau, New York, Apr. 12, 1945. Serial No. 482,063. Published Sept. 10, 1946. Class 6.

426,262. Boiler scale preventive and remover. Filed by Lu-Mont Manufacturing Co., Los Angeles, July 31, 1945. Serial No. 486,538. Published Mar. 26, 1946. Class 6.

426,266. Metal, glass, wall, woodwork cleaners. Filed by Dohrmann Hotel Supply Co., San Francisco, Aug. 27, 1945. Serial No. 487,598. Published Oct. 8, 1946. Class 4.

426,268. Insecticides and disinfectants. Filed by Rohm & Haas Co., Philadelphia, Aug. 31, 1945. Serial No. 487,864. Published Oct. 8, 1946. Class 6.

426,272. Floor, furniture and automobile waxes and polishes. Filed by Plymouth Wholesale Dry Goods Corp., New York, Sept. 13, 1945. Serial No. 488,421. Published Oct. 8, 1946. Class 16.

426,273. Insecticide in powdered form. Filed by De Press Co., Holland, Mich., Sept. 17, 1945. Serial No. 488,577. Published Sept. 10, 1946. Class 6.

426,274. Shampoo. Filed by I. Coulter, Salisbury, N. C., Sept. 19, 1945. Serial No. 488,687. Published Sept. 10, 1946. Class 6.

426,285. Chemical solvent preparation for cleaning tanks, etc. Filed (Turn to Page 169)

# If you are interested in *Hydrogenation*

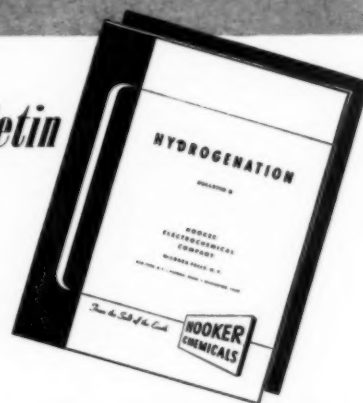
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Whatever the stage of your "thinking" regarding the hydrogenation of your products or raw materials, you ought to have a copy of the new Hooker Hydrogenation Bulletin. This Bulletin describes the hydrogenation facilities of Hooker's two plants, the types of hydrogenations we are doing, the procedure for both preliminary and laboratory evaluation and the help that Hooker hydrogenation experts can give you.

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Demands on Hooker facilities for hydrogenation are increasing continually. If you are considering hydrogenation, even remotely, we suggest you send for a copy of this Hydrogenation Bulletin, No. 8. A request on your company letterhead will bring it to you. Your next step might well be a discussion of your needs with us so that when ready, your hydrogenation requirements may be fulfilled without delay.



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Paradichlorobenzene  
Sodium Sulfide

Muriatic Acid  
Sodium Sulphhydrate





# BIDS AND AWARDS

## Navy Floor Wax Bids

In a recent opening for miscellaneous supplies by the Navy Bureau of Supplies and Accounts, Washington, D. C., the following bids were received on 4,000 gallons of floor wax: J. I. Holcomb Manufacturing Co., Indianapolis, \$3.59; S. C. Johnson & Son, Racine, Wis., \$1.67 a gallon, 72 drums \$6,613.20 and 73 drums \$6,705.05; Pacific Chemical Co., Los Angeles, \$1.40; Windsor Wax Co., Hoboken, N. J., \$1.15; Liquid Veneer Co., Buffalo, \$1.25; West Disinfecting Co., Long Island City, N. Y., \$1.40; Fox Lake Wax Co., Fox Lake, Ill., 82 cents; R. M. Hollingshead Corp., Camden, N. J., 89 cents; Oil Specialties & Refining Co., Brooklyn, 83.9 cents; Trio Chemical Works, Brooklyn, 79 cents; Franklin Research Co., Philadelphia, \$1.23.

## QMC Soap Bids

In a recent opening for miscellaneous supplies by the Army Quartermaster Corps, New York, the following bids were received on: item 1, 990 M pounds of chip soap; item 2, 982 M cakes of toilet soap; item 3, 13,163 gallons of liquid soap; item 4, 6,583 pounds of powdered toilet soap: Conti Products Corp., Brooklyn, item 1, 150 M pounds, 25.5 cents; Standard Soap Co. of Camden, Camden, N. J., item 1, 28 cents; Spazier Soap & Chemical Co., Santa Monica, Calif., item 1, 390 M pounds, 25 cents, domestic, export, 25.5 cents; Gillam Soap Works, Fort Worth, Tex., item 1, 330 M pounds, 24.625 cents; Wm. Messer Corp., New York, item 1, 32.5 cents, 75 M pounds; Procter & Gamble Distributing Co., Cincinnati, item 1, 100 M pounds domestic 26.85 cents and 26.71 cents; Stahl Soap Corp., Glendale, L. I., N. Y., item 1, 742,500 pounds, 28.5 cents, item 2, 736,500 cakes, domestic, 10.22 cents, 245,500 cakes overseas, 11.72 cents, item 4, 36 cents, accepted; Davies-Young Soap Co., Dayton, O., item 3, 55 cents;

Clifton Chemical Co., New York, item 3, 70 cents; West Disinfecting Co., Long Island City, N. Y., item 4, 22 cents; R. M. Hollingshead Corp., Camden, N. J., item 3, 72 cents; Fischer Industries, Cincinnati, item 3, 93 cents; Chemical Manufacturing & Distributing Co., Easton, Pa., item 3, 49 cents, accepted, alternate, 47 cents; Trio Chemical Works, Brooklyn, item 3, 56 cents; Jos. E. Frankel Co., Philadelphia, item 3, \$1.30; Peck's Products Co., St. Louis, item 3, 42 cents; Cole Laboratories, Long Island City, N. Y., item 3, 69 cents; Sanitary Soap Co., Paterson, item 3, 65 cents; Crystal Soap & Chemical Co., Philadelphia, item 3, 70 cents; Armour & Co., Soap Div., Chicago, item 3, alternate 87 cents.

## Misc. Treasury Bids

Among the bids received in a recent opening for miscellaneous supplies by the Treasury Department, Bureau of Federal Supply, Washington, D. C., were those on, item 1, 9,000 pounds of grit hand soap paste; item 2, 6,000 pounds of scouring compound: Utility Co., New York, item 1, 7.67 cents; Keystone Soap & Chemical Co., Jersey City, N. J., item 1, 9.25 cents and item 2, 6.07 cents; Chemical Mfg. & Distributing Co., Easton, Pa., item 2, 3.03 cents; R. M. Hollingshead Corp., Camden, N. J., item 1, 7.9 cents; American Soap & Washoline Co., Cohoes, N. Y., item 2, 3.05 cents; National Milling & Chemical Co., Philadelphia, item 2, 2.75 cents; Pal Products Manufacturing Corp., Brooklyn, item 2, 3.3 cents; Mione Manufacturing Co., Collingdale, Pa., item 1, 6.85 cents; Imperial Products Co., Philadelphia, item 2, 2.81 cents, 400 pound barrels and 2.7 cents alternate, 50 pound heavy kraft bags; Larkin Soap Co., Teaneck, N. J., item 1, 6.4 cents and item 2, 7.5 cents; Atwood Mfg. Co., Wilmington, Del., item 2, 6 cents; Flash Chemical Co., Cambridge, Mass., item 1, 7.29 cents; Globe Sanitary Supply Co., Los An-

geles, item 1, small cans approximately 25-pound cans, \$3.32 a can, item 2, 9 cents a pound; National Cleanser Products Co., New York, item 2, 4.9 cents; Tesco Chemicals, Inc., Atlanta, item 2, \$4.40 cwt; Wm. Messer Corp., New York, item 1, 8.3 cents.

In another Treasury opening these bids were received on 3,300 gallons of disinfectant: Coopers Creek Chemical Corp., West Conshohocken, Pa., \$6.2 cents; Koppers Co., White Tar Division, Kearny, N. J., 91 cents; Gerson-Stewart Corp., Cleveland, 65 cents; James Huggins & Son, Malden, Mass., 61 cents; R. M. Hollingshead Corp., Camden, N. J., 52 cents; Keystone Soap & Chemical Co., Jersey City, N. J., 73.125 cents.

## N. Y. Navy Bids

The following bids were received on 9,000 cans of liquid furniture, metal or wood polish in a recent opening for miscellaneous supplies by the New York Navy Purchasing Office, New York: Solarine Co., Baltimore, 10 cents each; R. M. Hollingshead Corp., Camden, N. J., 13 cents; Penetone Co., Tenafly, N. J., 14 cents; Oil Specialties & Refining Co., Brooklyn, 14 cents; International Metal Polish Co., Indianapolis, 17 cents; Lasting Products Co., Baltimore, 19 cents; O'Cedar Corp., Chicago, 20 cents.

In another opening by the New York Navy Yard, New York, for miscellaneous supplies, recently, the following bids were received on 8,500 pounds of paste toilet soap: Rose Chemical Co., New York, 19.5 cents a pound packed in plywood drums; Harley Soap Co., Philadelphia, 19.5 cents in 100 pound plywood kegs; Clifton Chemical Co., New York, 22 cents a pound; R. M. Hollingshead Corp., Camden, N. J., 27 cents a pound, and Unity Sanitary Supply Co., New York, 40 cents.

## Quota Yield of Whales

The entire quota of 16,000 blue whale units set up under the International Whaling Agreement for the season just closed in the waters of the Antarctic was reported to have been taken by the participating countries.



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Olive Oil  
Neatsfoot Oil  
Coconut Oil  
Cottonseed Oil  
Palm Kernel Oil  
Stearic Acid  
Oleo Stearine  
Soya Bean Oil  
Castor Oil  
Sesame Oil  
Lard Oil  
Palm Oil  
Corn Oil  
Peanut Oil  
Grease  
Tallow  
Red Oil  
White Olein  
Fatty Acids  
Soap Colors  
Chlorophyll  
Soda Ash  
Sal Soda  
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Caustic Potash  
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MINERAL OILS  
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As of May 28, 1947

**F**URTHER declines in prices of tallow and grease, lard and coconut oil characterized the fat and oil market during the past month. Tallow and grease have slipped to 13 cents for fancy and choice grades, respectively. Tallow and grease prices have dropped between 14 and 15 cents in two months, present prices being within about 4½ cents of levels prevailing under OPA ceilings. A feature of the tallow and grease picture is the re-establishment of the 1½ cent differential between yellow and white grease. Recently both white and yellow grease were commanding the same price.

A month-end report that both tallow and coconut oil prices were be-

coming firmer was checked and found to be true. Tallow and grease sales were said to have been made at from ½ to one cent above the previous low of 13 cents. Coconut crude, tank car basis delivered on the West Coast was said to be selling for 14 cents. However, with increased copra prices crushers were not interested in buying because of what they consider too low coconut oil prices. Increases in the price of copra were said to have been caused by European demand.

In summarizing the fats and oils situation the Department of Commerce publication *Industry Report* has this to say: "The fats and oils situation is in general moving toward a buyers' market. It is not so much a matter of sufficient supplies to meet

total possible demand, but rather an equilibrium between supply and demand has been reached at current prices. Unless supplies do not meet the present production estimates or exports increase greatly under new programs, it is unlikely that prices will again rise to previous levels." The Department of Commerce summary further points out that "In the case of soap fats, continued substantial imports of copra together with the prevailing high level of tallow and grease production are resulting in a more favorable supply picture. In addition, the increasing production of synthetic detergents of petroleum origin is adding to the available soap type products, and lessening the pressure on inedible fat supplies."

## EXQUISITE FLORALS FOR SOAPS

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Honeysuckle

Rose

Carnation

Hyacinth

Sweet Pea

Clover

Jasmin

Syringa

Fougere

Lavender

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30%-40% COCONUT

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COCONUT and CASTILE

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Pure Coconut  
U.S.P. Castile

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Kranich Soap Company, Inc.

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# KRANICH SOAPS

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On May 27 Manila copra was reported offered at \$173.50 per short ton, delivered at the Pacific Coast. This figure represents a drop of \$7.50 a ton from the last asking price. The decline was attributed to lack of demand and heavy receipts. Price declines were also recorded on the East Indonesia copra market.

In last month's market report we indicated that the 1947 allocation of Philippine copra to the U. S. had been increased by the I.E.F.C. This apparently resulted from a misunderstanding and the previous allocation of 199,000 metric tons or 432 million pounds (of oil) for 1947 still stands. The recent I.E.F.C. action merely authorized an increase in the rate of imports of copra during the first five months of the year to 55 per cent of the year's total.

The first bulk shipment of palm oil to be exported from Medan, Sumatra since the war left Medan recently. The palm oil is part of the stock stored by the Japanese during the occupation.

Because of the shortage of in-

edible fats and oils during 1947 the need for continuing to save waste household fats was urged by officials of the American Fat Salvage Committee in a special bulletin.

Authorization to import 250 tons of babassu kernels or babassu oil from Brazil, for domestic consumption, will be granted within the limit of the I.E.F.C. allocations to any person making application to the Production and Marketing Administration, it was announced May 22 by the Department of Agriculture. Further authorization for importations was also indicated.

A further drop in the price of carnauba wax has brought the price of No. 1 yellow to about 85 cents below the high level which prevailed some months ago. The present price of \$1.15 a pound for No. 1 yellow compares with a pre-war range of 40 to 45 cents a pound. Further declines are anticipated as a result of buyer resistance.

Although output of crude coal tar in 1946 dropped 12 per cent below 1945 production, totaling 14,464,392

gallons, coal tar chemical imports in 1946 were 16 per cent greater than the prewar average, it was revealed in May. Recovery of ammonia from coal-gas retorts reached a new low of 1,259,469 pounds in 1946, the report, issued by the Bureau of Mines, showed. Sales of coal tar, amounting to 18,337,041 gallons, continued to outstrip production. Stocks at the end of 1946 amounted to 2,557,656 gallons.

According to one of the large oil producers and refiners there is currently a severe shortage of all heavy type petroleum oils from kerosenes on down. Strikes, fires, etc. of last winter in several of the big plants have hurt the output of these products. As a result a much more acute shortage is predicted for the coming season.

Price reductions on certain types of essential oils, such as citronella, bergamot and lemongrass, spotlighted the May essential oil market picture. Cassia, anise and mint remained stable pricewise, with both lemongrass and Ceylon citronella being reported purchased in fair amount by soap makers.

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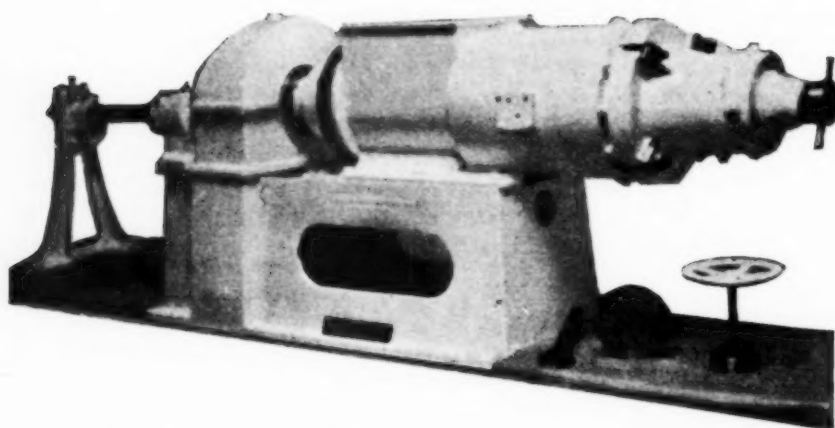
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## Raw Materials Handling in the SOAP PLANT

**C**ONSIDERABLE avoidable deterioration may result from faulty methods of materials handling and storage in the soap plant. Basic raw materials often arrive at soap factories in relatively poor condition and it is important to take strict precautions against further loss of quality. At the normal range of atmospheric temperatures, most oil stocks move sluggishly in pipelines, with the consequence that excessive power and time are expended in pumping them from barges or tank cars to weighing or storage tanks. Moreover, previously pumped oil tends to congeal on the walls of pipes, at bends, valves and other points of restriction, the total increase on oil flow power requirements being quite appreciable. This difficulty may be overcome, and pipelines maintained in clean condition, by tracing the system with steam before and after pumping.

In long pipelines, the amount of condensate from these operations is considerable and it is desirable to blow it out through an open end before pumping the oil. (Editor's Note: In this connection it is worth considering the installation of T- and Y-branches at certain pipe bends instead of standard elbows. In the case of a bad clogging of the pipe it is sometimes better to blow through these branches than into a tank or pump, or have to disassemble the piping installation.) It is important that care should be exercised in steaming out lines. A practical arrangement is to run a small bore

steam pipe along the underside of oil lines to maintain them at a temperature convenient for pumping the oil, and thereby preventing oil from cooling to a hard state. A relatively short and light steam flushing then suffices to clear the lines before pumping begins, and there is no danger of excessive temperatures which are necessary to remove a hard film of congealed oil.

To check quantities received against those invoiced, oilstock should be pumped first to scale tanks. Besides weighing, a certain degree of water separation is also effected by settlement and discharge before the oil is pumped to field storage tanks through pipelines which have been steam-traced. Materials of pumps, pipelines, tanks, etc., in the early stages are predominantly cast iron and mild steel, and, if all are maintained clean, the oil stock should reach the field storage in as good a state as that in which it arrived at the factory.

The balance of such considerations as economy of floor space, uniform temperature, etc., against longer pipelines and, therefore greater pumping costs, is in favor of locating storage tanks in the open.

If the foregoing precautions are not properly observed, deterioration will certainly result, because all soap oil stocks contain some free fatty acids which, even though dilute and relatively cold, will act on equipment and impurities therein and carry forward the resultant contaminants.

Caustic soda incoming to the soap plant normally can be conveyed from the tank car to the field tank by blowing with compressed air. Pipelines, tanks, fittings, etc., should be of stainless steel. The air supply should be dry and free from impurities which can easily be picked up from pipelines, containers, compressors and faulty filters. Strict maintenance of compressors is necessary to ensure freedom from mineral oil contamination, which is particularly undesirable as it promotes coagulation, the fouling of pipelines, hot-spots in heat exchangers, etc.

Water is a constituent of finished soap and a widely used intermediary. In its former capacity, it must carry any undesirable matter it contains into the finished product. As supplied for industrial purposes, it varies considerably in composition and is never entirely suitable for direct use in soap or for the many processing needs in the plant. It definitely requires treatment for use in such processes as the continuous high temperature, high pressure, hydrolysis of oils and fats. The ideal would be to use acidulated, distilled water, but the cost is prohibitive except in the case of a recirculating system of very low losses. In general, water treatment should be similar to the best practice for boiler feed, including a very efficient pressure filter system for the removal of precipitated solids. Further treatment is necessary for the elimination of dissolved substances which re-

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GLYCERINE
STEARIC ACID



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act with fatty acids and then promote inhibiting actions, coagulation, scaling, emulsion formation and the like.

Although not so liable to contamination as water, steam can also carry undesirable matter into finished soap products when used directly. Priming and carry-over should, therefore, be kept at a minimum. Furthermore, the cost of steam generation is a fairly considerable item in soap manufacture, so that the importance of adequate water treatment to avoid scaling, corrosion, etc., and of precise combustion control is worthy of note.

### Study of Wetting Power

In a series of tests of different concentrations of the same wetting agent, the more concentrated solutions which showed the shortest Draves sinking time, did not wet the sample as thoroughly as the more dilute solutions which showed longer Draves sinking times. The hydrometer method used permits observations to be made over the complete range of "wetnesses" of the sample. It is not proposed that a test of this type replace the Draves test for the routine evaluation of wetting agents, but the large amount of data obtained seems to make desirable a reexamination of the problems of determining the effectiveness of a wetting process and of the relative rating of wetting agents. Selection of the most appropriate agent for a particular application may have to involve consideration of (1) the degree of wetness which must be attained for the success of the process, (2) the thickness and tightness of the material being wet, (3) the time of exposure and (4) the degree of agitation. I. J. Gruntfest, O. B. Hager and H. B. Walker, *Am. Dyestuff Reporter* 36, 225-6, 252 (1947).

### Role of Antioxidants

Little has been published on the kinetics of the destruction of antioxidants present in oxidizing fats. The deterioration of hydroquinone, catechol, NDGA (nordihydroguaiaretic acid), and gallic acid in lard oxidizing at 100° C. has been quantitatively studied. The results indicate that in general, the deterioration of phenolic

antioxidants in oxidizing fats does not occur as a single low-order reaction but is complicated by products formed in the oxidation of the fat and possibly also of the antioxidant. The deterioration curves for gallic acid are quite different from those of the other three antioxidants. There is an in-

creasing catalytic effect with increasing initial concentrations of all of these antioxidants on the formation of peroxides during the early stages of the autoxidation of lard. W. O. Lundberg, W. B. Dockstader and H. O. Galvorson, *J. Am. Oil Chem. Soc.* 24, 89-92 (1947).



## Action of Phosphates

**P**HOSPHATE glasses approximating sodium metaphosphate,  $\text{NaPO}_3$ , in  $\text{P}_2\text{O}_5$  content, are effective in suppressing calcium ions. The superiority of the water-soluble glass over the water-soluble crystalline salt was recognized early. This metaphosphate glass was the first water softener whose addition to calcium hard water did not necessarily yield a precipitate, yet could give water practically as soft as distilled water.

Non-Crystalline, condensed sodium phosphates, especially sodium tripolyphosphate,  $\text{Na}_5\text{P}_3\text{O}_{10}$ , and the glasses, act as deterrents to the crystallization of calcium carbonate in very low concentrations, that is, 1-5 p.p.m. Such concentrations are far below those required for calcium suppression, yet the two phenomena are probably related. The inhibiting action is presumably due to adsorption of the complex phosphate on submicroscopic calcium carbonate nuclei, so as to prevent growth and hence prevent precipitation. Microscopic studies at concentrations below the threshold show that the sodium phosphates cause distortion of the calcite crystals. This distortion increases and the amount of crystallization decreases as the con-

centration of complex phosphate increases, until at a threshold concentration, no crystallization occurs.

Crystalline sodium metaphosphate has negligible inhibiting action but becomes quite effective in the presence of alkali, presumably owing to conversion to tripolyphosphate.

In addition to preventing the deposition of calcium carbonate scale, these low concentrations will dissolve old deposits of calcium carbonate scale in boiler systems if such solutions are kept flowing through the pipes for several months.

The concentration of different forms of phosphates required to prevent the precipitation of soap in 5-grain hard water is given in the table below.

In the last column of the table are estimates of the minimum amount of phosphate that would be required to form the indicated complex.

Phase diagrams are given for some binary systems,  $\text{Na}_2\text{O}-\text{P}_2\text{O}_5$ ,  $\text{H}_2\text{O}-\text{P}_2\text{O}_5$ , and ternary systems,  $\text{NaOH}-\text{H}_3\text{PO}_4-\text{H}_2\text{O}$ . Data on physical and chemical properties of a number of phosphates are also given. O. T. Quimby, *Chem. Reviews* 40, 141-79 (1947).

0.175% Sodium Coconut-Oil Soap at 70.5° C.

Agent	Formula	Concentration of Phosphate Required in g/100 ml.			
		Against Mg Hardness	Against Ca Hardness	Assumed Complex Formed	Minimum Conc.
Tetrasodium pyrophosphate	$\text{Na}_4\text{P}_2\text{O}_7$	0.025	0.82	$\text{Na}_2\text{MP}_2\text{O}_7$	0.023
Hexasodium tetraphosphate	$\text{Na}_6\text{P}_4\text{O}_{13}$	0.022	0.35	.....	.....
Phosphate glass	65% $\text{P}_2\text{O}_5$	0.021	0.085	.....	.....
Sodium hexametaphosphate	69.6% $\text{P}_2\text{O}_5$	.....	.....	$\text{Na}_2\text{M}_6\text{P}_6\text{O}_{18}$ $\text{M}_6\text{P}_6\text{O}_{18}$	0.026 0.017





\* One of a series of advertisements based on industrial opportunities in the states served by the Union Pacific Railroad.

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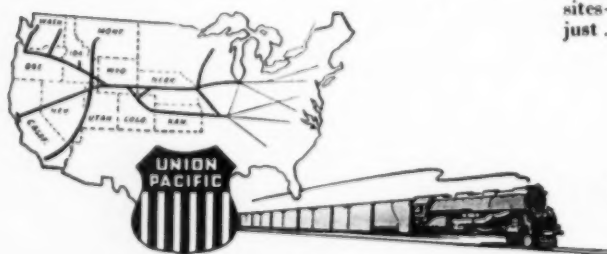
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# Propose New Federal Specs for METAL CLEANERS

**T**WO new proposals for Federal specifications for products having application in metal cleaning for the removal of grease, oil and sludges were submitted for industry approval, in May, by H. W. Gilbert, Technical Committee on Detergents, Federal Specifications Board, Bureau of Federal Supply, Treasury Department. The industry is requested to review the contents of the proposed specifications and forward any comments or suggestions regarding the general satisfactoriness of the specifications to Mr. Gilbert, c/o Bureau Aeronautics, Navy Department, Room 1-W-62, Washington 25, D. C.

The first proposed specification is for a "Cleaner, Soap-Alkali, Heavy Duty (for metal surfaces)." A number of points regarding the proposed spec are of interest: The cleaner shall be a uniform, free-flowing mixture in powder or granular form of sodium metasilicate (pentahydrate); sodium resinate, and tetrasodium pyrophosphate. It shall contain no abrasives, free resin, or inert fillers. The composition of the cleaner shall be as in the accompanying table:

Constituent:	Per Cent by Weight (As Received)	
	Minimum	Maximum
Moisture (xylol distillation method).....		33
Sodium metasilicate, pentahydrate, (Na <sub>2</sub> SiO <sub>3</sub> ·5H <sub>2</sub> O).....	68	72
Anhydrous tetrasodium pyrophosphate, (Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> ).....	18	22
Anhydrous sodium resinate.....	8	12

**Fineness:** The cleaner shall be such that not more than 5 per cent is retained on a No. 8 sieve. **Solubility:** The cleaner shall be completely soluble in distilled water at 25° C. **pH value:** The pH value of a distilled water solution containing 1.0 gm of the cleaner in 100 ml. of solution shall be not less than 11.5 nor more than 12.5. **Orthophosphates:** The cleaner shall contain no orthophosphates. Various tests are included in the proposed specification for the determination of the above conditions.

The second new proposal is a Federal specification for a "Steam Cleaner." The cleaner shall be a non-hygroscopic, granular mixture in powder form of synthetic detergent and alkaline salts of suitable alkalinity and water softening ability. Fatty acids, rosin, starch, abrasives, gritty material, or inert fillers shall not be present. The ingredient materials used in the manufacture of steam cleaner shall be of high quality, suitable for the purpose, and shall conform to applicable Government specifications as specified. The cleaner shall be thoroughly mixed and present no evidence of segregation of individual constituents, or of lumping or caking. The ingredients shall produce a uniform product which is stable in a sealed container and not subject to abnormal change with age. The manufacturer shall place upon each container information regarding the directions for use (presented in detail in the specification). The following detail requirements are proposed:

**Moisture:** Moisture content shall not exceed 20 per cent by weight; **Total Alkalinity:** The total alkalinity,

calculated as Na<sub>2</sub>O, shall not exceed 33 per cent by weight; **Silicates:** Silicates, calculated as SiO<sub>2</sub>, shall be between 8 per cent and 12 per cent by weight; **Phosphates:** Phosphates, calculated as P<sub>2</sub>O<sub>5</sub>, shall be not less than 14 per cent by weight; **Solubility:** Matter insoluble in distilled water at a temperature of 100° C. shall not exceed 0.50 per cent by weight; **Buffer and pH Capacity:** The cleaner solution shall have an initial pH between 10.5 and 11.5. The addition of two ml. of 0.1N hydrochloric acid shall not re-

duce the pH of the solution by more than one unit; **Detergent:** The soap shall be a non-deliquescent synthetic ingredient, soluble and stable in the silicate solution when prepared for use; **Foam Power:** The foam power of the cleaner shall be such that, when tested as specified, an unbroken lather shall persist for a period of not less than five minutes; **Surface Tension:** The surface tension of a solution of four ounces of cleaner per gallon of distilled water at 25° C. (77° F.), shall be not more than 32 dynes per centimeter; **Corrosiveness:** A solution of eight ounces of cleaner per gallon of water shall cause no visible staining, discoloration, or attack of the base metal surfaces of highly polished aluminum alloy, magnesium alloy, or anodized aluminum alloy panels after one hour immersion at 96 to 100° C. (205 to 212° F.); **Stability:** There shall be no evidence of precipitation or curd formation in a solution prepared and tested as specified; **Rinsing:** A solution of the cleaner in synthetic hard water shall leave no white film or corrosion on highly polished aluminum alloy, magnesium alloy, or anodized aluminum alloy panels after testing as specified; **Coarse Particles:** At a relative humidity of not greater than 60 per cent, the percentage of coarse particles retained on both a No. 18 and a No. 40 sieve shall not exceed 40 per cent with the percentage retained on the No. 18 sieve not greater than 25 per cent. Various tests are included in the proposed specifications for the determination of the detailed requirements as above-stated.

## Submicro Soap Ribbons

Crystalline ethyl stearate was saponified with alcoholic sodium hydroxide. From the gel there were obtained completely parallel, macroscopic, and highly oriented bundles of soap filaments 8 cm. long. These were studied with the electron microscope and x-rays. The fibers are not round but are ribbons with rectangular cross section. Isothermal vapor - pressure measurements showed no evidence for the existence of hydrates. P. A. Thiesen and H. Erdmann. *Z. physik. Chem.* 193, 367-77; through *Chem. Abs.*

**UNIFORM  
SOAP DRYING**  
*begins at the*  
**CHILLING  
MACHINE**

*with the* **PROCTOR**  
*Automatic*  
**FLAKE SOAP SYSTEM**

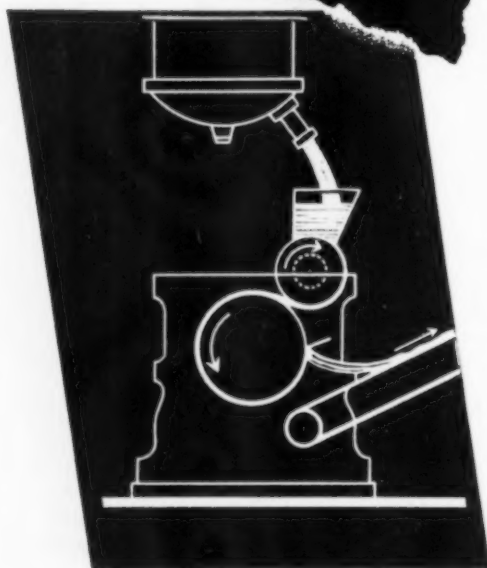
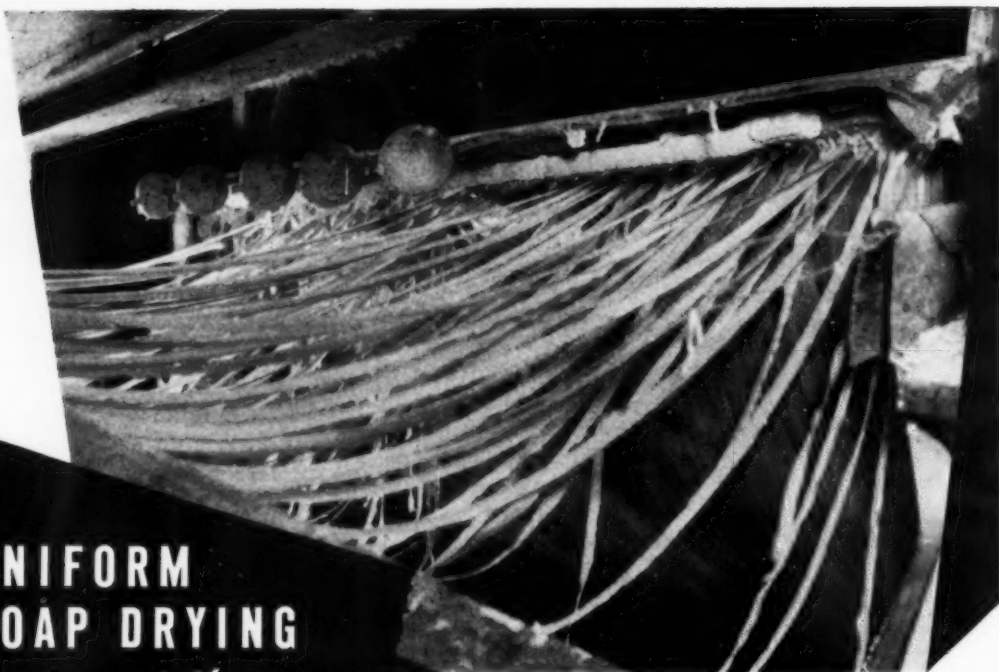


Photo at top shows ribbons being stripped from chilling roll and carried into dryer. Diagram illustrates principle of operation of chilling machine.



The first important step in converting liquid soap into flakes with the Proctor automatic system is to solidify the soap so that it is best suited to conveyor drying. This is accomplished by means of a chilling machine. Because the uniformity of the finished flakes really starts at this point, the Proctor chilling machine is carefully engineered in every detail.

Hot, liquid soap pours from the crutcher or storage kettle into the hopper of the chilling machine at a continuous and uniform rate. This hopper may be steam heated and equipped with an automatic temperature control for maintaining soap at a constant temperature as it goes to the chilling roll. A special alloy feeding roll forms a part of the hopper and carries the liquid soap to a point of contact with the main chilling roll. The surface of this main chilling roll is chilled by means of an internal water system. The feed roll and the main chilling roll are set with such precision that the soap is spread to a uniform thickness across the entire surface of the roll. At a given point, the solidified soap is removed from the chilling roll, in ribbons of uniform width, by means of a serrated and a plain knife or a set of marking devices and a plain knife, and carried by a special carry-in conveyor into the dryer.

The accuracy and precision with which this rugged part of the system is engineered and built is typical of the entire equipment. It is just one of the contributing factors that assures consistently uniform results with the modern Proctor flake soap system. Write for details today.

**PROCTOR & SCHWARTZ, INC.**

PHILADELPHIA 20, PA.



## PRODUCTION

# Clinic

By DR. E. G. THOMSEN, PH D

**T**HE art of expressing one's ideas in words most often is a talent that has been cultivated, rather than inherited, although many are convinced that this capability is a natural gift possessed by some persons and denied to others. Incidentally, the ability to express one's thoughts or instructions clearly and in simple, understandable English can be a very important asset in the career of the average executive.

Unfortunately factory production men are all too often less expert as writers, and less inclined to develop their talents in this direction than those in other divisions of a business. This defect is of much disadvantage to them. Their weakness in phrasing their thoughts adequately is often due to their not having the proper facilities at hand, like a stenographer or even a typewriter that one always finds in the office. Often these facilities are remote from the manufacturing operations and the only alternative is the laborious job of writing in long hand. It is for this reason perhaps that the average production man tends to use the telephone or word of mouth to communicate his ideas, requests or orders. Such communications are frequently misunderstood, overlooked or misinterpreted, and when the show-down comes on what may be important and costly issues, there are denials and "buck passing", which lead to further complications. To avoid such chances of possible confusion, it is good practice, even in the production end of the business, to insist upon "putting it in writing." Written instructions, even tho they may be vague, still offer a permanent record.



To get back to the ability to write, we hear it said time and again that the reason there is a paucity of this ability in business is that business men are too busy to write; they cannot write; or they find it difficult to express their ideas. But our own experience indicates that the reason so many executives, production men particularly, cannot write, is that they simply will not write. They are unwilling to keep on trying and trying until they find their real level or handicap. As a result many such men find their progress impeded and their problems increased. The younger men particularly who develop the habit of keeping written records, proper notebooks and a ready, available index will find their tasks lighter as time goes on. Letter writing ability should also be developed. The ability to write for house organs, trade papers and scientific journals contributes materially to advancement in one's profession and in the eyes of fellow employees. It may mean effort and practice, but in the

long run personal satisfaction and considerable direct benefit are assured.

It is then of decided advantage to take the attitude that writing is an important ability affecting the possible success of one's business career. Writing well does not mean at all incidentally, that we must use stultified, unusual, long drawn out terms. Simple, direct, terse terms are the normal style of business writing. Brevity with clarity should be the aim. The best writing results from writing just as you would speak, provided of course that your speaking is clear, concise and well organized.

**T**HE continuing scarcity and until recently the soaring prices of soap-making fats and oils have given sellers of soap substitutes a great opportunity to break into the soap market. In reading the claims for some of these co-called "synthetic" soaps, interesting opinions may be obtained about how inefficient the old standby detergent, soap, is considered. We question whether all the defects charged against it can be substantiated, however. Nor are all the wonderful properties assigned to the new replacements necessarily true. When soap is available again at normal prices, we are quite certain it will be preferred by most users of household detergents for general cleansing purposes.

Advertising tips that soap is now a thing of the past can hardly be considered accurate. The fact that soap is bad because it contains fats, oils and greases is a misconception and obviously an appeal to chemical ignorance. Like soap, many of the wetting agents which are "blown up" by such assertions, also are derived from oils and greases. We doubt if the "synthetic" soaps will do a better job than soap when used in quantities approaching "one-quarter to one-half those of soap." Poor maligned soap is also built with alkaline salts which aid materially the cleaning power of the surface active agents. The cleansing properties of these builders are generally soft-pedalled in advertising "synthetic" soaps, though they comprise the greater part of the cleansing power. Such builders are no less harsh on fabrics



... She has her favorite ... its consistent appeal is your sale. ... Whatever it be, it must be uncompromised ... faithful to her preference ... definite and lasting ...

There is no need for compromise with FLORASYNTH'S ESSENTIAL AROMATICS.

## **BERGAMOT SYNTHETIC**

is one of a proven practical line noted for its faithful reproduction of the natural products.



others are  
Geranium Synthetic  
Lavender Synthetic  
Terpinyl Acetate  
Citrosynth (Citronella)  
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and hands when combined with a wetting agent than when used in combination with soap.

There is room, as detergents, for these newer types of cleansers, but we doubt if the weird properties assigned to them through advertising which seeks to belittle soaps will create the proper attitude toward them. It is better marketing strategy to describe their merits in plain statement of fact as some manufacturers do.

### New Potash Deposits

**L**ARGE deposits of potash have been found over salt beds in the Northwest, say reports. These run eastward on a 350-mile curved line from Regina, Sask. in Canada into North Dakota. While the U. S. still has large reserves of potash, mainly in New Mexico, it is comforting to hear of additional reserves. Canada too is benefitted inasmuch as she imports her potash. The new deposit may be a boon to North Dakota, which is not particularly rich in natural resources. With cheap fuel available in her large lignite beds which are being developed, this discovery may be a further impetus to chemical manufacture there. Much research has already been carried on to produce cheap hydrogen for chemical hydrogenation processes.

### Danger from Solvents

**I**NFORMATION on protecting the solvent plant from solvent vapors during the summer was recently released by Safety Research Institute, Inc., New York. Accumulation of solvent vapors may be overcome by proper ventilation, and dangers of dermatitis from organic solvent vapors may be reduced by frequent washing with a mild soap, followed by application of protective or lubricating cream. The report provides a worthwhile table of relative hazards of over 20 aliphatic, aromatic and chlorinated hydrocarbon solvents.

### New Booklet on Glycols

"Glycols" is the newest booklet in the group series published by Carbide and Carbon Chemicals Corporation. It presents in detail the properties, specifications, and uses, of

ethylene glycol, diethylene glycol, "Kromfax" solvent (thiodiglycol), triethylene glycol, propylene glycol, dipropylene glycol, and ethylhexanediol. In 30 charts it gives such information as physical constants, comparative evaporation rates, and solubility data. It also includes 94 literature references to the glycols. Copies of this booklet may be obtained from any office of Carbide and Carbon Chemicals Corporation.

### Fractionated Tall Oil Acids

High quality tall oil fatty acids are among the new products available to the soap industry as a result of improved fractionation techniques. Prior to the war, tall oil was sold mostly as a low grade crude suitable for limited uses, but the newer fractionated tall oil acids are pale in color, low in titer and of quite constant quality. Two new types of fractionated tall oil fatty acids are on the market produced by Arthur C. Trask Co., Chicago producers of sulfonated and processed oils. "Latol-182" (79 per cent unsaturated fatty acids and 18 per cent rosin acids) offers advantages of rapid saponification, high detergency, and economy in price and handling. "Latol-68" consists of 90 per cent fatty acids and 7 per cent rosin acids. The fatty acids in these products are oleic (40-46 per cent), linoleic, (35-40 per cent) and linolenic, (3-4 per cent). The fractionated tall oil fatty acids are said to be useful for compounding with coconut oil in making scrub soaps, as well as suitable in the manufacture of alkyds, cutting oils, polishes and other specialties where a substitute for low titre unsaturated fatty acids is desired.

### Hooker Produces New Acid

Production on a commercial scale of monochloroacetic acid was announced in May by Hooker Electrochemical Co., Niagara Falls. The acid is an intermediate in the manufacture of carboxymethyl cellulose (CMC), ammonium thioglycollate, and thioglycollic acid as well as for the weed-killer 2,4-D and esters of *alpha*-naphthlene acetic acid, used for fruit set and tuber storage control. The Hooker acid is a white crystalline material with a strong sweetish odor. It is cor-

rosive to the skin. Although the plant is beginning large scale operation, all of the production is taken for some time to come. Further announcement will be made by the company when the product is available generally. It will be sold in two grades: high grade, and technical grade.

### New Ace Hand Trucks

Nineteen new models of hand trucks of varying size and capacity were recently announced by the Ace Co., Ocala, Fla. The new trucks, marketed under the trade name "Ace" and made of "furniture grade" steel tubing, feature a thrust absorber principle. By this design the thrust from the load is carried directly from the nose plate to the frame and not through a welded joint.

### New Folder on Bagging

A new folder, "Accent on Sanitation" concerning the economy of multiwall paper bags and bagging machines was recently issued by St. Regis Sales Corp., New York, a subsidiary of St. Regis Paper Company. The folder traces the economies gained by the St. Regis multiwall packaging system particularly in the bagging of soybean flour.

### New Tank Data Sheet

A new data sheet on stainless steel tanks and kettles was recently released by George G. Rodgers Co., New York. The data sheet gives capacities and physical data on the company's line of corrosion resistant, highly polished, completely welded stainless steel tanks. The company also makes vertical and horizontal tanks in monel, copper, nickel and aluminum metals as well as stainless steel steam jacketed kettles with or without agitators.

### Nitrosyl Chloride Bulletin

The Solvay Process Company, New York, has announced a new booklet on nitrosyl chloride. In addition to presenting chemical and physical properties, this booklet describes the new all nickel cylinders and fittings which have been developed for storing and shipping nitrosyl chloride, gives information on handling, laboratory

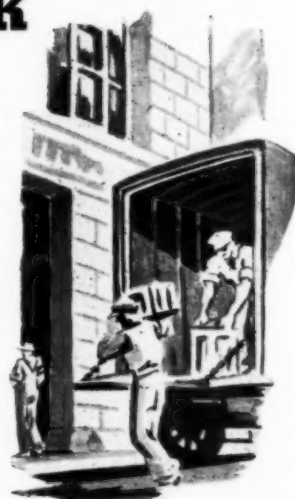


## ISCO CHEMICALS AT WORK

In all walks of life ISCO chemicals are found in quality products. For instance, when you get a shine, ISCO gums help make better shoe cleaners. ISCO waxes such as Carnauba, Beeswax, Candelilla, Montan, and Ceresine go into the making of quality shoe polishes.

In all of your daily activities there is an ISCO product at work making good things better. It might be a better textile because of an ISCO chemical. Your food is better and cleaner because of ISCO products. Milady is more beautiful because of ISCO cosmetic materials.

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# Innis, Speiden & Co.

A NAME AS OLD AS THE AMERICAN CHEMICAL INDUSTRY



preparation, safety measures and typical industrial applications. Also included are charts, sketches, a bibliography and patent references. Copies may be obtained from Solvay Process Company, Product Development Section, 40 Rector Street, New York 6, New York, and asking for booklet NC No. 1.

#### Offers New Clay

A new bleaching clay, "Adsorbol", was offered last month by Innis, Speiden & Co., New York. Adsorbol is an adsorption type clay available in both the natural and activated states. Its chief use is in the decolorizing of fatty and petroleum oils. The product is said to be useful in the recovery of crank case oils and dry cleaning solvents.

#### Staley Produces Lecithin

Manufacture of two types of lecithin from soybean oil was started May 15th by A. E. Staley Mfg. Co., Decatur, Ill. The special type of lecithin for industrial uses, the company points out, has a large field of application in soap manufacture. The food type lecithin, a yellowish brown waxy material, is claimed to be a good agent for emulsifying fats and oils with other materials, insuring uniform distribution of the fatty material throughout the mass. Lecithin also retards oxidation and rancidity.

#### German Formulas Released

Formulas for soaps, perfumes, shampoos and cosmetics with reference to German use of synthetic waxes, oils, emulsifiers, and aromatics, as compiled in a report by the Office of Technical Service, U. S. Department of Commerce, were recently released. The report, PB-47526, contains 109 pages, is on microfilm and is priced at \$3. It is available from OTS.

#### New Booklet on Waxes

A new 15-page booklet entitled "Dependable Waxes for Industry" was recently released by International Wax Refining Corp., Brooklyn. The booklet gives physical and chemical data, characteristics and uses of

the company's line of synthetic wax products such as "B Wax," a synthetic beeswax, "Ozokerite Wax," "Canawax," "Intawax" (Amber and Brown), "Intawax Concentrate," "Palmetto Wax," and a synthetic carnauba wax.

#### New Chemical Dictionary

"Concise Chemical Technical Dictionary," edited by H. Bennett, was issued this spring by the Chemical Publishing Co., New York. About 50,000 definitions are included in this volume which covers every field of scientific and technical development. Written by both professionals and laymen, the book contains a great many internationally accepted terms which facilitate mutual understanding among scientists and technical workers. The definitions are concise and to the point. Many abbreviations, contractions and useful tabulations add to the value of this book. It is priced at \$10.

#### Hospital Laundry Survey

According to a survey of hospital laundries compiled by *Hospital Management*, 76 per cent of the hospitals in the survey operate their own power laundries, suggesting the size of the hospital market for laundry soaps and detergents. Three hundred and twenty of the laundries are power laundries. It is pointed out by the survey that the superintendent is the most important single factor in the purchase of hospital laundry supplies; however, there is a wider diffusion of purchasing power among the various executives and administrative personnel with respect to the purchasing of supplies than there is in the purchasing of machinery.

#### Plastic Tube Containers

A new low-cost individual packaging protection for a wide range of merchandise has been developed by Precision Paper Tube Company, Chicago. By use of an electronic sealing process, thermo-plastic sheet materials are converted into tubes of any length and diameter. The plastic materials can be of type, composition, thickness and strength suitable for

most any project. Materials may be translucent, transparent or opaque; flexible or rigid. Sheets of the thickness required are slit to size and run thru the electronic seal, forming a one-piece tube of the diameter specified. Tubes with walls from .001" to .04" thick for packaging a variety of food and hardware products are being made by this process. The flexible tubing is supplied to specifications in any length (wound on spools if desired), from which tubing can be used in specific lengths for enclosure of articles, quickly cut, and end sealed. Uses in flexible form cover a score of lines—from shampoo concentrates to bait lures.

#### New Malmstrom Lanolin

N. I. Malmstrom & Co., Brooklyn, are expanding marketing plans for their new "odorless" lanolin, available previously in limited quantities. According to the company, the new product, apart from being virtually odorless at ordinary temperatures, is also very light in color. It is said to minimize discoloration upon aging.

#### Eye Washing Fountains

Several large soap manufacturers, as well as others in other chemical lines, are reported to have installed in their plants a newly developed eye washing fountain, designed for first aid treatment in removing chemicals which have accidentally entered employees' eyes. By placing the face over the bowl, the forehead contacts a valve button thereby releasing a steady and soft stream of water, so positioned as to flow into both eyes. Hands are thus freed for opening the eyelids, an operation which is assisted by the low rim in front, which leaves plenty of room for movement. A control screw, built into the valve assembly, insures a perfect stream, regardless of incoming water line pressure. Corrosion-resistant aluminum is used for the face-fitting bowl and other parts are chrome plated or of stainless steel. The device is distributed by Benson Associates, Inc., 332 S. Michigan Ave., Chicago 4, Ill.

# Eliminate THE EXTRA STEP

## Cut MIXING COSTS *20% or more*

One way to reduce material handling costs is to eliminate the extra step of emptying drums into mixing units.

Wherever mixing can be performed by revolving or tumbling the container, "U. S." Drum Mixing equipment can save you time and money.

"U. S." Drum Mixing equipment permits mixing in your own or supplier's drums . . . avoids the costly delays from emptying and cleaning fixed containers . . . eliminates danger of contamination.

**AVAILABLE**

*for Quick Shipment* ➤

While our present supply of highly scarce motors lasts, we can make prompt shipment of certain size units. Write or wire for details.

### DRUM ROLLERS

"U. S." Adjustable Drum Rollers will roll any round container from a one-gallon pail to a 70-gallon drum. Eight heavy-duty rubber wheels are adjustable to provide ample clearance for rolling hoops and bung openings. Powerful, heavy-duty motor will roll loads up to 1,000 lbs. "U. S." Drum Rollers are built in sizes to handle one, two, three, or four drums, constant or variable speed drive.

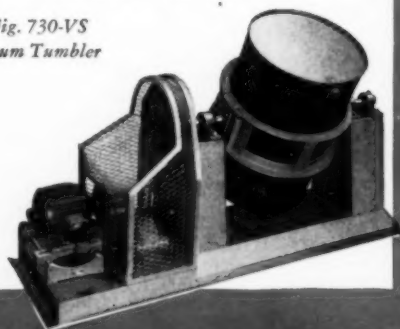
Fig. 745-S  
Drum Roller



### DRUM TUMBLERS

"U. S." Drum Tumblers are built in two sizes: single and double drum units to handle standard 55-gallon drums. Units to handle 30- or 70-gallon drums are available on special making order. Variable speed drive permits tumbling speeds from 8 to 21 RPM. Powerful, heavy-duty motor will handle loads up to 1,000 lbs. Adjustable yoke opens quickly and easily, locks securely.

Fig. 730-VS  
Drum Tumbler



WRITE FOR OUR MIXING EQUIPMENT CATALOG TODAY!  
PROCESS EQUIPMENT DIVISION

  
**U. S. STONEWARE**  
*Akron, Ohio*



### New Model Soap Dispensers

American Dispenser Co., 215 4th Ave., New York 3, N. Y., has introduced to the market what is claimed is the first soap dispenser ever designed which combines a utility shelf and the dispenser in one piece. Made of stainless steel and holding one-half gallon of liquid soap, the device is 20 inches long, 1½ inches high and, from wall to push button valve, is 6 inches wide. Air, pumped through the piston, when it is operated, is forced through a screen, resulting in tiny soap bubbles or lather at delivery spout. Two models are available, one with only one release valve, the other having two, making it

possible for the latter dispenser to straddle two wash basins. Top cover is removable for filling or to clean out sediment and an indicator shows the soap level inside. The new dispenser was shown at the recent National Sanitary Supply Association convention in Chicago. Another new powdered soap dispenser embodying an interesting innovation was also shown. Where other dispensers release the soap with a piston valve, this one provides for tipping the entire container, thereby keeping the contents continually agitated without an agitator and thus preventing caking of the soap powder. The company's line also includes other dispensers with conventional operating features.

### Washing Woolen Blankets

Research at Pennsylvania State College has led to the following recommendations for washing woolen blankets: Wool fibers and fabrics are among the easiest of materials to cleanse. In most instances the dirtiest woolen blanket can be adequately cleaned by washing it for a few minutes in a lukewarm solution of soft water that contains a low-titer neutral soap concentration of at least 0.2 per cent.

Many launderers and dry-cleaners never attain this desirable soap concentration in blanket washing, because a poor suds is readily obtained with much less soap when water levels on the suds baths are 8 inches to 12 inches as is the rule for the washing of woollens. In order to attain a soap concentration of 0.2 per cent it is necessary to use about one pound of soap on a 10-inch water level in a 36 by 64 inch wheel.

The question is often raised concerning the use of alkaline builders in the processing of woollens. It

has been our experience that alkaline builders do not add to the efficiency of the soap in the washing of 100 per cent woolen fabrics. However, in handling articles which have cotton or rayon trimming, or for wool and cotton mixtures, the use of a mild alkali such as modified soda is recommended as a builder. A ratio of two parts of soap to one part of the alkali should be found to be satisfactory. *The Broadcast*, through *Bull. Canadian Research Inst. of Launderers and Cleaners*, April, 1947.

### Oil from Animal Residues

Oil is produced from oil-bearing protein material of animal origin, normally subject to relatively rapid spoilage, by forming an aqueous mixture of the fresh raw material with 3-12 per cent of alcohol, based on the weight of the mixture. The mixture is stored until substantial digestion of the material has taken place, when the oil is recovered. C. W. Kaufman, to General Foods Corp. Canadian Patent No. 439,886.

### Control of Alkalinity

A predetermined free alkalinity or free acidity of a soap stream in a continuous process of manufacture, is maintained by use of an antimony electrode, the potential of which is balanced against that of a reference electrode immersed in a solution of known composition. While a pH determination in a system where hydrolysis of fat or neutralization of fatty acids is being carried out is not an accurate measure of the free acidity or free alkalinity of the system, a potential characteristic of a particular free alkali content can be determined for a soap of a given fatty acid composition and hydration at a specified temperature. This method of control can also be applied to batch processes as well as to the production of synthetic detergents of the type of salts of sulfated or sulfonated organic compounds. Colgate-Palmolive-Peet Co. British Patent No. 578,278.

### Improves Washed Fabrics

A mixture applied at the end of the laundering process to improve the appearance and wearing qualities of laundered fabrics is described by H. Engler in U. S. Patent 2,407,635, as follows:

1. Emulsified solution
 

	Pounds
Gum tragacanth .....	1/8
Pectin .....	1/8
Glycerine .....	1
Water, about .....	20
2. Final preparation
 

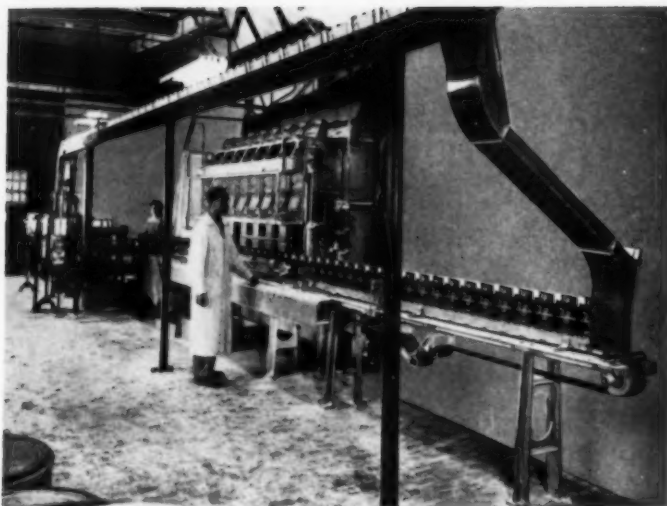
	Pounds
Gum tragacanth .....	1/4
Glycerine .....	3
Sodium borate .....	1/2
Emulsified solution .....	1

The solution specified in 1. is used as the fourth ingredient in 2. *Glycerine Facts*, March, 1947.

### Peroxide Bleaching

A study was made of the amount of silica and silicate deposited on cotton, bleached according to the usual method with hydrogen peroxide in the presence of sodium silicate. A new method for determination of silica deposition is given. Addition of caustic soda or soda ash to the bleach liquor increases silica deposition, while addition of tetrasodium pyrophosphate reduced residual silica to a minimum. B. DuBose and V. B. Holland. *Am. Dyestuff Reporter* 36, 227-8 (1947).





**PACKAGES 80 PER MINUTE**

*Automatically!*

**H**ERE'S the newest, fastest, most accurate machine on the market for packaging soap flakes automatically—the Triangle Elec-Tri-Pak Vibratory Feed Weigher—a high-speed weighing and filling machine that really increases production, cuts costs and saves waste of material!

The Model A8A-SO, illustrated, weighs, fills and plunges soap flakes at a rate up to 40,000 cartons per day depending on size. Other models for lesser production and applications.

No other packaging machinery investment offers a comparable return. Write for new illustrated brochure.



Above — Model A8A Elec-Tri-Pak with Model SO synchronized conveyor at an Armour and Company plant handling 14 oz. cartons Chiffon Flakes at 70 to 80 per minute.

**TRIANGLE PACKAGE MACHINERY CO.**

913 NO. SPAULDING AVENUE, CHICAGO

Weighers . . . Fillers . . . Carton Sealers

**AVAILABLE AT NEW LOW PRICES!!**

## **BEAD FORM SYNTHETIC DETERGENT**

(Alkyl Aryl Sulphonate)

(Low Alkalinity—High Percentage Active Ingredient)

Specific Gravity—.1 (Approximately 10 times as bulky as soda ash.)

Also available in 85% concentrated powdered form

**Something Else Available!!**

**A FLUFFED LOW DENSITY BORAX PROCESS FOR LICENSE**

(Density 2 to 3 lbs. to the cubic foot)

**NOT A BEADED PRODUCT. WILL NOT BREAK DOWN WITH COMPOUNDING**

**EAVENSON CHEMICAL CO.**

55 Liberty Street

New York 5, N. Y.

Complete Line of High Quality Synthetic Detergents—Paste—Powder and Liquid for Compounding.



# PRODUCTS AND PROCESSES

## Water Softener Preparation

In order to prepare a soda ash-metaphosphate mixture for water softening, water is added to dry soda ash in the ratio of 3:5 by weight and thoroughly mixed. Sixteen parts of the hydrated soda ash are mixed with 90 parts of 80-mesh sodium hexametaphosphate, and the mixture is placed in a rotating drum and tumbled for 3-5 minutes. Agglomeration takes place by transference of the water of hydration from the soda ash to the metaphosphate. A denser product may be obtained by allowing the mixture to stand without agitation for 5-10 minutes and then tumbling. The product is finished by drying in air at 70-90° C. J. E. Moose, to Monsanto Chemical Co. U. S. Patent No. 2,414,969.

## Organic Sulfonates

Organic sulfur compounds useful as detergents are prepared by the reaction of organic compounds with thionyl chloride and chlorine in the presence of ultraviolet light. The organic sulfonyl halides thus formed may be converted to the corresponding acids, or optionally oxidized to yield a sulfonate. For example, when lauryl chloride is treated with chlorine and sulfonyl chloride, a mixture of sodium laurate and the disodium salt of a sulfonated lauric acid is obtained upon hydrolysis and oxidation. D. J. Potter, to Colgate-Palmolive-Peet Co. U. S. Patent No. 2,412,909.

## Sulfonated Amines

Foaming and detergent agents are prepared by treating a naphthylamine disulfonic acid or a salt thereof, at a raised temperature and (or) in the presence of an acid-binding agent, with an aralkyl chloride containing at least 8 carbon atoms. The aliphatically-bound chlorine atom is that of a single chloromethyl group bound to the aryl nucleus. For example, a chloromethyl naphthalene and the disodium salt of 2,6,8-naphthylamine disulfonic acid are caused to react at

75° C. in an alkaline solution to form a sulfonated amine. Soc. pour l'ind. chim. a Bale. British Patent No. 582,092.

## Refining Fatty Oils

Fatty oils, particularly castor oil, which tend to emulsify with water, can be refined after the fatty acids are neutralized, by use of a series of treatments with absorbent earths. Fuller's earth is preferred because it can be used not only for the removal of the bulk of aqueous matter after neutralization, but also for the further improvement of such properties as color and dielectric quality of the oil. The amount of Fuller's earth is critical since a large excess causes a portion of the soap stock to be reconverted to fatty acids. Either percolation or contact treatment can be used. Aerovox Corp. British Patent No. 581,483.

## Soap Additive

Guanidine stearate incorporated in soap increases solubility and detergency. From 1 to 15 per cent may be employed, 5 per cent normally being sufficient. The compound is prepared and added to the soap at any stage of manufacture. Guanidine laurate or myristate is not as effective as the stearate, nor is such an additive as effective in filled soaps as in unfilled soaps. The presence of guanidine stearate helps to maintain calcium and magnesium soaps in a dispersed state and thus reduces scum formation in hard water. Lever Brothers and Unilever Ltd. British Patent No. 581,799.

## Glycerol Recovery

Glycerol is recovered from fats and oils by adding ammonium chloride to a reactive mixture of oil, methanol, and sodium methylate. The ammonium chloride enters into a double decomposition with the sodium compounds, which are catalysts, and soaps formed during the alcoholysis, to yield ammonium and sodium chloride. The

methanol and ammonia are then distilled, leaving a layer of fatty esters, which is decanted. After removal of the precipitated sodium chloride, the glycerol is recovered by distillation. National Oil Products Co. British Patent No. 579,767.

## Vacuum Drying of Soap

Liquid soap is sprayed into a vacuum chamber and the resultant dried material agitated to produce powder or flakes. The original water content of 30 per cent can be reduced to about 5 per cent for soap powder and 14 per cent for bars or flakes, by regulation of the temperature or of the vacuum. If it is desired to control the alkalinity of the finished soap, carbon dioxide or fatty acids can be introduced into the spray nozzle in proportioned amounts. E. T. Webb and Baker Perkins Ltd. British Patent No. 581,203.

## Aralkyl Sulfonated Ethers

Detergent compounds of aralkyl sulfonated ethers are prepared by etherifying sulfonated hydroxy aromatic compounds with a chloromethyl aromatic or partially hydrogenated aromatic compound of at least 10 carbon atoms. Soc. pour l'ind. chim. a Bale. British Patent No. 581,985.

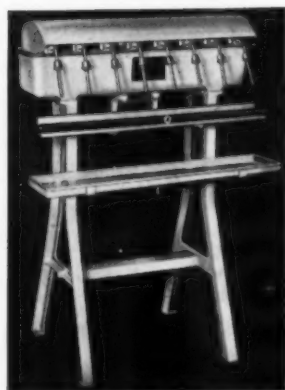
## Corrects Cleaner Formula

In response to an error in the lavatory bowl cleaner formula suggested in the article "The Small Soap Maker," in *March Soap*, page 44, J. M. Vallance, author of the article, wishes to express his thanks to L. S. De Atley, Thompson-Hayward Chemical Co., Kansas City for pointing out the incompatibility of soda ash and sodium acid sulfate in the same formula. Mr. Vallance writes: "'Soda ash' should actually read 'Sodium chloride.' The formula then becomes workable, non-effervescent and satisfactory in performance. The formula should properly read: sodium acid sulfate 45 parts; sodium chloride 20 parts; aluminum sulfate 15 parts; sodium perborate 10 parts, and sodium pyrophosphate 10 parts.

# MOST POPULAR

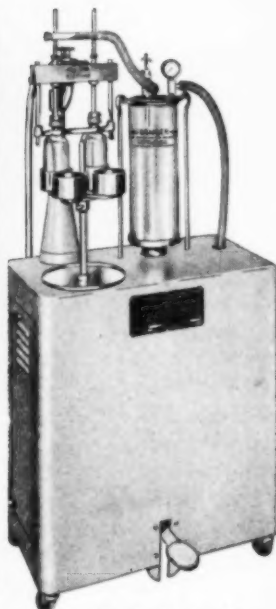
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Complete copies of any patents or trade-mark registration reported below may be obtained by sending 50c for each copy desired to Lancaster, Allwine & Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,418,458, **Pest Control**, patented April 8, 1947 by Euclid W. Bousquet, Wilmington, Del., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. The method of insect control which comprises contacting the insect with a bi-molecular condensate obtained by condensing two mols of a keto-enol and two mols of a phenol having a replaceable ortho hydrogen with the splitting off of two mols of water.

No. 2,418,459, **Pest Control**, patented April 8, 1947 by Euclid W. Bousquet, Wilmington, Del., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. The method of insect control which comprises contacting the insect with the bi-molecular condensate of acetone and m-cresol said bi-molecular condensate being characterized by molecular weight corresponding to two mols of acetone, plus two mols of cresol, minus two mols of water, and by cryptophenolic properties.

No. 2,418,652, **Insecticidal Compositions**, patented April 8, 1947 by Kenneth E. Maxwell, Martinez, Calif., assignor to Shell Development Company, San Francisco, Calif. An insecticidal composition essentially comprising a mineral oil, and insecticidal toxicant, and between about 0.01 per cent and about 1.0 per cent (by weight of the oil) of the malate of the condensation product of ethanol ethylene diamine and a mixture of stearic and palmitic acids, said composition being capable of forming an unstable emulsion with water.

No. 2,418,908, **Cleaning Composition for Removing Sludge from Internal-Combustion Engines**, patented

April 15, 1947 by George M. Skinner, Kenmore, N. Y., assignor to National Carbon Company, New York. A cleaning composition for removing sludge from internal combustion engines consisting of a homogeneous liquid mixture of a solvent composed of an acetate ester of a glycol monoalkyl ether and methyl amyl acetate, in appreciable component proportions and in total amount of about 50 per cent to 80 per cent by volume; a lubricating oil in amount from about 15 per cent to 25 per cent; about 4 per cent to 25 per cent of water; and about 5 per cent to 20 per cent of a morpholine soap coupling agent.

No. 2,418,909, **Cleaning Composition for Removing Sludge from Internal-Combustion Engines**, patented April 15, 1947 by George M. Skinner, Kenmore, N. Y., assignor to National Carbon Company, of New York. A cleaning composition for removing sludge from internal combustion engines consisting of a homogeneous liquid mixture of a solvent composed of a glycol monoalkyl ether, a higher molecular weight aliphatic ketone, and methyl amyl acetate, each in appreciable component proportions and in total amount of about 50 per cent to 80 per cent by volume; a lubricating oil in an amount from about 15 per cent to 25 per cent; about 5 per cent to 25 per cent of water; and about 5 per cent to 20 per cent of a morpholine soap coupling agent.

No. 2,418,986, **Germicidal Solutions of Phenyl Mercury Compounds**, patented April 15, 1947 by Guy Rampel, New York, N. Y. A composition of matter containing approximately the following proportions of ingredients: 3 parts by weight phenyl mercury acetate, 50 parts by volume diethylene-glycol-monoethyl-ether, 0.7 part by volume lactic acid, 0.8 part by volume ammonia and sufficient water to produce the desired dilution of the composition.

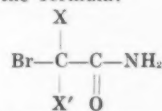
No. 2,419,021, **Bactericide and Algaecide**, patented April 15, 1947 by Charles Warren Harnden, Berkeley, Calif., assignor to Shell Development Company, San Francisco. A bactericidal and algaecidal composition comprising a mixture including 40 per cent to 60 per cent trichlorobutanes having at least 2 secondary chlorine atoms, 5 per cent to 20 per cent dichlorobutane and 10 per cent to 25 per cent dichloropentanes, and a minor amount of an emulsifying agent.

No. 2,419,073, **Method for Controlling Parasites in Soil**, patented

April 15, 1947 by Oscar H. Hammer, South Haven, Mich., assignor to The Dow Chemical Company, Midland, Mich. A method of preventing the attack of growing plants by borer and soil organisms including the step of applying in contact with the soil and adjacent to the plant a composition comprising a volatile liquid halo-hydrocarbon dispersed in and on a coarsely subdivided solid carrier the average particle size of which is at least 1/64 inch in diameter.

No. 2,419,404, **Method for Higher Fatty Acid Polyamine Soaps**, patented April 22, 1947 by James M. Johnson, New York, N. Y., assignor to Nostrip Inc. In making a surface active agent, the method which comprises reacting an aliphatic polyamine with carbon dioxide in amount at least approximately equal to mol of the polyamine, then mixing the product with a higher fatty acid containing 8 to 22 carbon atoms to the molecule and in amount in excess of two mols for each mol of the carbon dioxide and heating the resulting mixture to a temperature of at least approximately 250°F. to expel the volatile acidic substance and form a soap of the amine with the higher fatty acid.

No. 2,419,888 **Seed and Plant Disinfectants**, patented April 29, 1947 by Kenneth G. Nolan and Ingenium Hechenbleikner, Stamford, Conn., assignors to American Cyanamid Company, New York. A composition for the control of seed and plant diseases comprising a toxic amount of a compound of the formula:



in which X and X' are chosen from the group consisting of hydrogen, cyanogen, thiocyanogen and halogen, and a solid inert filler.

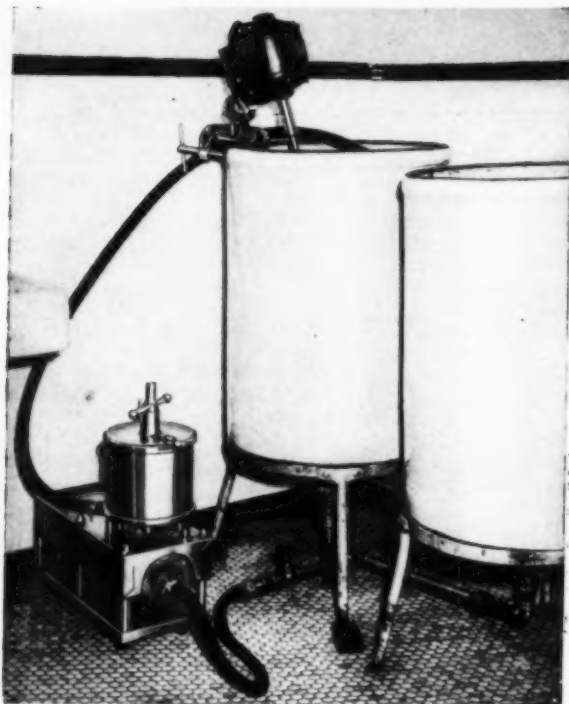
### Detecting Surface Activity

A qualitative method can be used to detect the presence of small amounts of surface-active agents. The method is applicable to all types, anionic, cationic, and nonionic. It is based on the solubilization in aqueous solution of certain oil-soluble dyes, particularly Brilliant Oil Blue BMA. L. F. Hoyt, *J. Am. Oil Chemists' Soc.* 24, 54-6 (1947).

### Cleaning Painted Surfaces

Painted, enameled, or varnished surfaces are cleaned with a solution of a sulfated fatty alcohol to which free ammonia has been added. L. T. Edwards. British Patent No. 567,497.





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## THE LANHAM ACT

(From Page 40)

"merely descriptive" marks without regard to whether they are primarily so. But they must be merely descriptive "when applied to the goods of the applicant." With regard to the cosmetic industry, this prohibition will probably mean that such designations as, for instance, "Fraise" or "Rouge" or any other term indicating a certain color shade would continue to be excluded from registration. As heretofore, words which are descriptive in a foreign language, particularly in French, will be held descriptive by the Patent Office. Thus, a word like "Peaudouce" for a skin lotion which was found unregistrable some years ago, would still be disqualified under the new Act. But words which are merely suggestive such as "Chez Lui" for perfume are, of course, registrable. A word which is technically misdescriptive may still be adopted as a trade-mark unless it is deceptive. A

word like "Ivory" for soap, while technically misdescriptive, would not deceive any one with regard to the ingredients thereof and, therefore, would be acceptable for registration. Color trade-marks, if part of a design on composite marks, have recently been granted liberal protection by the courts and may in many instances even be registrable as trade-marks on the principal register. The Supreme Court held only recently that a red ball on a sole for shoes had trade-mark significance, and only a few weeks ago the well-known color arrangement on the "Barbasol" package was given full protection as a trade-mark. On the other hand, wherever the color serves as a functional element it cannot be protected. On that ground color tips of matches or milk bottle caps have been rejected as trade-marks. Even the read seal used on Victor records was recently refused protection. Frequently the use of certain colors may acquire sufficient significance in the public mind to be at least protected against unfair competition. The

many Yellow Taxicab cases furnish a good illustration of such protection.

The new law contains an interesting provision permitting registration of the shape of a perfume bottle or of a package or any other similar device. But registration of such devices is limited to the so-called "supplemental register." It was adopted almost entirely for purposes of foreign trade since the trade-mark laws of numerous foreign countries permit registration of packages, configurations of goods, etc. and it was thought desirable to make such protection abroad possible for American trade-mark owners through registration on the so-called "supplemental register" which, of course, has little, if any, effect in the United States. It would be a mistake to assume that by registering the shape of a bottle on the supplemental register any substantive rights therein would be acquired in this country. There is considerable difference of opinion with regard to the question whether such bottle or design could ever acquire sufficient

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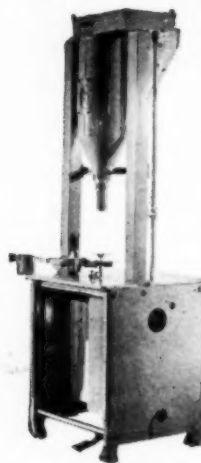
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distinctiveness to justify a conversion from the supplemental register to the principal register.

Apart from providing much more flexible and liberal standards with regard to the registration of the traditional type of trade-mark, the new law also provides for protection of some types of marks which have heretofore not been held entitled to registration. This is particularly true of so-called "service" marks, which are used to indicate services rather than goods. Under the extremely broad definition of the Act this term includes even slogans and distinctive features of radio or other advertising. Despite this broad definition, it is, I believe, fairly clear that such advertising slogans cannot be registered as trade-marks if they are used on or in connection with goods. Thus, the letters LS/MFT, even if advertised over the radio, would not be a service mark but might qualify as a trade-mark for cigarettes. The popular slogan in Washington, D. C., "Don't make a

move without calling Smith's" might be registered on one of the two registers as a service mark, but a separate registration would be required if the same words or slogan were used on furniture made by the same concern. A few such slogans are registered as trade-marks even under the present law. I believe the slogan "Ask the man who owns one" is a good illustration. It has been suggested that even musical sounds such as the well-known three notes used by the National Broadcasting Company might qualify as a service mark under the new law.

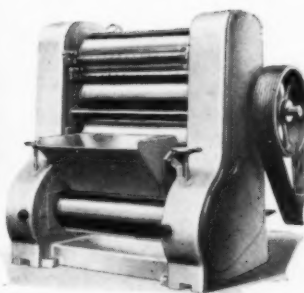
Other innovations in the new law provide for the registration of so-called "certification" marks such as "Good Housekeeping," and authorize use of a holding company's trade-mark by its subsidiaries or licensees.

Time does not permit any discussion of the many interesting problems that will necessarily arise in the application and interpretation of these new concepts. But my few remarks may have served to indicate that a

determined effort has been made in the new law to bring the registration statute into harmony with the requirements of modern advertising and business policy.

**T**HERE is only one other phase of the new law which deserves special emphasis at this time. That is the complete elimination of the prevailing doctrine as embodied in the present statute of 1905 which, for purposes of registration and infringement, makes the presence or absence of "same descriptive properties" the controlling test. Under the new law the decisive factor will be likelihood of confusion and that alone. It is true that our equity courts in applying principles of unfair competition, and occasionally even in trade-mark infringement cases, have already in the past applied such a general confusion test even where it admittedly would, according to Judge Learned Hand's famous decision in the Yale case, "do some violence to the language of the statute." Cases are

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legion in which famous trade-marks have been protected even against use on unrelated goods as long as there may arise some possibility of confusion as to origin and reputation. "Tiffany" was protected against use by a motion picture company, "Dunhill" was protected against use on shirts, "Kodak" was protected against use on bicycles and only a few weeks ago an injunction was issued against use of the word "Ford" on an insecticide. The Patent Office naturally was rather reluctant in view of the unrelenting language of the statute to ignore completely the requirement of "different descriptive properties." But there has been a notable trend in recent years to apply such a general confusion test even in registration proceedings. If a strict classification test had been applied in a case involving Elizabeth Arden's initials on a soap or jewelry container as contrasted with the use of the same mark on soap or cosmetics, the Patent Office would have had to conclude that soap and soap receptacles belong to two different classes. However, a more realistic view was taken and, the language of the statute notwithstanding, it was held that cigarettes and cigarette holders as well as lipstick and lipstick containers were so closely associated in the public mind that confusion necessarily must result if the same mark were used by different concerns on those products. Under the new law the Patent Office has been given the green light with regard to this problem. The language of the Act is broad enough to permit the Office to use the same general confusion test which our equity courts have applied for the last few decades. Thus, to revert to one of my illustrations, if it should be found that the Ford Motor Company manufactures a fertilizer and there may be some confusion as to origin between a Ford fertilizer and an insecticide, the registration of the word "Ford" for insecticides may and should be refused under the new law. Indeed, the functions of the Patent Office as a whole will be much more quasi-judicial in determining registrability of trade-marks than they have been in the past, particularly since other equitable de-

fenses which were hitherto unavailable in registration proceedings may under the new law be raised before the Patent Office at all times and stages of the proceedings.

There are many other ways in which the new Trade-Mark Act will prove of great benefit to trade and business in general. This will be particularly true with regard to such new concepts as "concurrent registrations" by more than one user and particularly with regard to the new concept of incontestability of trade-marks and the scope of their protection.

While the views which I have here advanced represent my personal observations rather than the official views of the Patent Office, I know that I speak for everyone presently concerned with the administration and interpretation of the new Act when I invite all trade-mark registrants to give careful study to the tentative rules of procedure which were issued recently and to let the Patent Office have the benefit of any comments or criticisms that you may care to submit. It is my firm conviction that with the active cooperation of the bar and all interested trade groups it will be possible to make the new Trade-Mark Act a living instrument and tool in the protection of valuable—indeed oftentimes invaluable—property rights, and in the never-ceasing battle of all of us against unfair competition and unfair practices of trade.

#### Wood Features Sales Plan

G. H. Wood & Co., Toronto suppliers of industrial sanitation products, recently released details of their nationwide sales campaign running from March 17th until June 28th. The campaign is expected to increase by 50 per cent the number of salesmen's daily calls on customers. More than 135 of Wood's salesmen are competing for prizes worth a total of \$25,000, and are operating on a "planned day" schedule graphically worked out by the company. The theme of the campaign is "You've Got to Make Calls If You Want to Get Results."

#### Shavecream Is Toilet Prep

Once again the Interstate Commerce Commission has insisted that shaving cream and shaving soaps, whether of the brushless or the lather type, must be classed as toilet preparations rather than as soaps. The National Classification Board still takes the position that, "far from being 'soaps' the brushless creams contain 60% to 70% of water and usually not more than 5% soap which is used as an emulsifying agent, that is, to hold together a large amount of water and a lesser amount of oil." The brief of the N.C.B. said "lather creams" also are emulsions. In regular soaps, the brief emphasized, "the water content is quite small."

The brief went on to say that shaving creams and soaps produced and used exclusively for "shaving" are "toilet preparations." Citing a case in point, the brief noted that the ICC already has held that one particular shampoo, advertised and used as a hair and scalp cleanser, is a "toilet preparation" rather than a "soap" as had been contended by the manufacturer. In further argument, the brief said that densities and values of shaving creams and shaving soaps are more akin to those of toilet preparations, such as cold creams, facial creams, and dental creams, than to the usual run of soaps which, in general, are used for a variety of purposes.

In addition, the brief explained, "many of the brushless and lather creams are susceptible to damage arising from extreme temperatures," a factor adding expense to handling of shipments and one which is recognized as proper in determining rate classification.

Finally, the brief said all except one of the brushless creams "carry instructions to wash the face with soap and water before using the cream." This, in itself, the brief maintained, "shows clearly that the preparations are not soap." Attention was called to the fact that one shaving cream is advertised as affording relief from sunburn, windburn, chapped hands and insect bites—indicative of its nature as a "toilet preparation."



# SANITARY PRODUCTS

## A SECTION OF SOAP

**B**ACK in the days when premiums represented standard practice in the sale of sanitation chemical products, the quality of the material delivered was usually of secondary importance to the elegance of the premium. Bedroom suites, bicycles, shotguns, and even pianos were given when the order was large enough. And then, of course, there were those public servants who preferred just plain hard cash based on the size of the order. Mostly, this premium business of twenty years ago has gone by the board. Leading houses in the sanitary products field killed it chiefly by refusing flatly to get into the racket.

But this does not mean necessarily that other forms of graft in the sale of sanitation chemicals do not still exist. That individual salesmen "take care" of the janitor, superintendent, or other user is no secret. The house may frown on the practice and forbid it,—but who is to know when the salesman slips a ten spot to the janitor? And if he fails to do so, who is to know the real reason why the products of this supplier have suddenly become unsatisfactory? The wax has no polish; the insecticide no longer kills bugs.

With the return of keener competitive selling of sanitation supplies, the good word of the janitor will be more sought after than during the days of war-time scarcity. He may demand his toll and the salesman anxious to get the business or fearful of losing it, will feel that he is compelled to comply. Or again, it may crop out even at the point of purchase for some public agencies. If certain delivered materials reported to us on public purchase are a criterion, we feel that our suspicions here might have a foundation of fact.

By and large, the practices of the old days have been pretty much cut down or eliminated. Quality and price of the material, not a hand-out, determine most sales. But there are still embers of the old fire remaining which competition could fan into a good blaze on short notice. The

industry has progressed far since the giddy days of the nineteen-twenties and it behooves its members not to permit any form of sales graft again to obtain a toe-hold because of increasing keenness of competition.



**O**NE of the most pronounced influences of the aerosol type insecticide on the industry as a whole has been the stimulus to improvement which it has given to sprayers for the application of regular liquid household insecticides and the so-called liquid concentrates. That the aerosol has been responsible for the development of new spray equipment designed to duplicate the finely-divided gaseous character of the concentrated self-propelled insecticide is generally admitted.

The number of new types of insecticide application devices offered on the market this year has been larger than in any previous year we can remember. And uniformly, it appears that they do a better spraying job, give greater volume, wider range and better penetration than the older sprayers. Some are designed for industrial and institutional use only; others for both household and industrial purposes. Some use one concentration of insecticide liquid while some use other concentrations.

In this latter situation, complications for the insecticide industry may arise. Sprayers designed only for one type of liquid may find maintenance men using any insecticide which happens to be handy. Special liquids obtainable solely from the sprayer manufacturer may tread on the toes of other suppliers of liquid insecticides, and find them damning the sprayer unjustly as a gesture of self-defense. The potential problems in this surge of new spraying equipment are numerous, sufficiently so, we feel, that a discussion of them in open forum or by an industry committee might be very timely.

# N.A.I.D.M. Meets in Chicago

**T**HE thirty-third annual mid-year meeting of the National Association of Insecticide & Disinfectant Manufacturers was scheduled to open the morning of Monday, June 9, at the Edgewater Beach Hotel, Chicago, following a meeting of the Board of Governors on the previous evening, and to continue through June 11. Business sessions were scheduled for morning and afternoon on June 9, with morning sessions only on the 10th and 11th. Afternoons were to be left free on the second and third days of the convention to provide an opportunity for committees to meet. An informal dinner and floor show, the principal entertainment feature of the convention, was listed for the evening of Tuesday, June 10. John Powell of John Powell & Co., arranged the program for the meeting, and L. P. Killilea of the Chicago office of Hercules Powder Co. acted as chairman of the entertainment committee.

Reports of the President of the association, N. J. Gothard of Sinclair Refining Co., and the secretary, H. W. Hamilton of Koppers Co., White Tar Division, were to be heard at the opening session, June 9, as follows:

## Report of the President

**T**HE NAIDM Board of Governors feels that the membership at large should be more fully advised as to our activities and has asked me to give you a report of actions at recent Board meetings and of the activities of the Association in general.

The NAIDM exhibit was presented at four conventions last year, including meetings of the National Institute of Governmental Purchasing, the American Hospital Association, the National Safety Council and the American Public Health Association. It was felt that our exhibits at those places were worth while and should be continued. Therefore, the sum of \$2,000.00 was appropriated for the showing of the exhibit during



N. J. GOTHARD, NAIDM President,  
Sinclair Refining Co.

1947 at these spots, or others which may be selected.

Also, various sums have been appropriated for the work of our scientific committees. Some of these sums have been specifically marked for research projects, while others have been appropriated for general committee expenses. Our committees have been particularly active this year and will report real progress in the development of new testing procedures, methods of analysis, and other matters. However, as these committees become more active, their expenses increase.

In connection with our cooperative advertising, it has been suggested that since we have about exhausted effective ideas for this type of advertising for the moment, this form of activity might be dropped at least temporarily. The cooperative advertising program has thus been discontinued. Here again we should welcome the thoughts of members, as to whether they feel that this type of advertising is effective and whether consideration should be given to its resumption.

The Board, with the assistance of John Conner, has arranged for a complete rewriting of our Constitution and By-Laws. The new drafts have been circulated to members for consideration and the question of their adoption will be acted on later. It is felt that the proposed Consti-

tution and By-Laws are an improvement over those now in force in that they clarify many points which at present are vague and indefinite.

For the past six months a large amount of our time and money has been spent in covering legislative matters and in keeping members of the industry advised on these developments. During the war period, legislation covering economic poisons was largely neglected, but, with the end of the war, both the Federal Congress and many state legislatures became interested in writing new laws or bringing their old ones up to date. In addition to the United States Congress, 44 state legislatures have been in session in recent months. Of these, 21 legislatures introduced some form of economic poison law. Nine states have already passed laws of this type and, incidentally, in all but one case, these laws conform closely enough to the Model State Law to be reasonably satisfactory. Of the remaining 12 legislatures where laws were introduced, six are still in session, with the proposed laws still pending, and six adjourned without action.

An immense amount of time and work is necessarily required on the part of our Executive Office, our Legislative Office, our Legislative Committee and our General Counsel in connection with these legislative problems. First, we must find out that such laws have been introduced and must obtain copies of them. They must be examined to determine whether they are in reasonable agreement with the Model Law, or whether they contain objectionable features. In the latter case, strenuous efforts are made, involving interviews and hearings with legislatures and enforcement officials in an effort to have the proposed law amended to conform to the essential features of the Uniform Law. Much travelling by our Counsel and by our committee members is necessary in connection with this work, involving considerable expense. All of this has involved unprecedented expenses both for travel and the issuance of bulletins to members, and we have already used up most of the funds budgeted for

this purpose for the entire year. Of course, this feature is unusual, because never before have we had so many proposed laws to contend with. Many of the legislatures have now adjourned, or will do so shortly, so that the load will not be as great during the second half of the year.

We have felt that it was desirable to furnish complete copies of the laws, even though considerable work and expense were involved. Certainly if you are doing business in any of the many states involved, the information should be of vital importance. Whether it is necessary to bulletin the full text of the law or whether a summary of the important features would do is a question which has been bothering us. We should like to have your views on this matter.

We are arranging for a complete, loose-leaf compilation of regulatory laws covering our industries. This is largely in the printer's hands and should be ready late this summer. This compilation of laws is an expensive proposition and your Board has appropriated \$8,000 to see it through. However, we expect to get most of this money back by the sale of copies of the compilation. We propose to furnish each member with one copy at no cost, with extra copies at a moderate charge, and with copies to non-members at a reasonable charge. We believe that this compilation will be of inestimable value to the industry.

Your Board is trying to furnish you with every possible service and to apportion your money so that it will give you the greatest possible return. In order to reduce the cost of our bulletin service, the Board has authorized the purchase of mimeographing and addressing equipment so that this work can be done in our own office.

The various unusual expenses outlined add up to the fact that for this year we will probably exceed our budget and our income. Many of these expenses are extraordinary and largely non-recurring. Fortunately, we have available a reserve which can be used to make up our deficit. Since we have such a reserve and since many of these outlays are non-recurring, this matter is not particularly serious at this time. However, it is obvious that we cannot continue to incur expenses in excess of our income for any considerable period of time.

I have tried to give you some idea of how your Board is dispersing your money and what you are receiving for your membership. However, you should remember at

all times that it is your Association and that your Board is always anxious to carry out the wishes of a majority. Therefore, both your Board and I would welcome at any time your suggestions as to what you think of the services now being given you, whether they are of value to you and what you want, or whether there are other services which we might be able to give you.



H. W. HAMILTON, Secretary  
Koppers Co. White Tar Div.

### Report of Secretary

**T**HUS far in 1947, we find our mutual problems more complex than we anticipated for the second post-war year. A dormant legislative program vitally affecting all of us has risen to almost overpowering activity. The economic situation is chaotic. The shortages of many commodities and rising costs have contributed to the business anxiety of many. This has resulted in requests from members and governmental agencies for all sorts of information and statistics. Information of this specific type is not available at the NAIDM Office.

There is much in our development program that has of necessity been pushed to one side temporarily. Our major efforts for the past six months have been on legislative matters. To keep a record of the various laws introduced in the Federal and State Legislatures, follow them as they progress, and watch for amendments, changes, and final disposition is quite a job, especially with 44 State Legislatures in session and all sorts of measures carrying provisions affecting our industry. There are indications that many of us will be paying annual registration fees for our products amounting to over \$2,000 per year.

The need of keeping you fully advised about these laws vitally affecting your business is still a "first" in the activities of NAIDM.

Keeping track of legislation is only one phase of the task. Co-operating with other groups in allied fields and coordinating action on each piece of legislation is most important. We have sought to keep as closely as possible to the Model Insecticide Bill adopted by the Council of State Governments, in the belief that basic uniformity in state laws is essential to national welfare and good business.

The response to some of our urgent bulletins has at times been discouraging. Each member can help in some of these crises. Send us copies of your letters whether in support or disapproval of any action taken.

To date, we have issued 100 bulletins since the December meeting. In 1946 for the entire year we issued a total of 128 bulletins. Of the 100 bulletins sent out so far this year, 62 were on matters pertaining to legislation. Complete copies of the new laws are sent out as they are enacted and reprints of papers read before our meetings are mailed to you. As a result of this unusual activity, the cost of operating the bulletin service has necessarily been abnormally high. It is not anticipated that this will continue. There probably will not be such a heavy legislative program again for at least two years.

At this time, I should like to review the functions of the NAIDM Executive Office, as far as its relationship to individual members and products is concerned. It is obvious that we cannot make recommendations regarding the efficiency of any product or ingredient. Such references as may be made along these lines are restricted to quotations from Federal or State authorities which might give information to our members in guiding them in their labeling or use of a product. The Executive Office assembles and distributes information regarding the laws, regulations, and other details affecting the sale of products manufactured by the membership or industry. The interpretation of these laws and regulations must of necessity rest with the company making the products coming under these laws. It is our firm intention to reflect in no way our interpretations or opinions of laws or regulations as applied to any particular product, or group of products. We believe these functions rest strictly



with the individual manufacturer. Many manufacturers in answer to letters directed to enforcement officials are often told, I might point out, that "the manufacturer is responsible for the proper labeling and performance of his product at all times."

The Official Test Insecticide for 1947-48 is now available. To date, 148 dozens of the 1946-47 O.T.I. were sold, which is less than during the previous year. The O.T.I. continues to be used in all parts of the world.

Another task being coordinated through the Executive Office is the publication of a Compilation of Laws regulating our industry. Each member firm will receive one copy free, with annual revisions, as long as membership is continued. A fee of \$15 will be charged for each additional copy, and a fee of \$5 per copy for annual revisions. Non-members may purchase the book for \$25 per copy. The annual service fee for non-members will be \$10 per copy. The technical work on this compilation is being done by John D. Conner. This edition will be limited to 1000 copies.

As soon as the Compilation of Laws is completed, and other work of the Executive Office is organized, we shall proceed with the many other programs which are pending, such as a questionnaire to members about products they make, and materials used so we may inform you more intelligently of things of interest that are brought to our attention.

A leaflet describing the accomplishments of the Association in the past 30 years will be prepared. Many other projects are in our future plans, but we must await the necessary time and funds.

There is every evidence that the years ahead of us require the coordinated action of each member of this industry. We are being confronted with ever pressing problems of new insecticide laws, economic poison laws, pharmacy laws, net weight laws,—all of which must be considered and supported, revised or opposed, as the case may be. Then, after the laws are enacted, come the regulations. In addition to our legal tasks in the Executive Office, there are also many old problems to be dealt with such as new raw materials, proper labeling and testing, etc.

The balance of the program for Monday morning was to have included a review of current legislation by W.

J. Zick, B. Heller & Co., chairman, Legislative Committee, and John D. Conner, N.A.I.D.M. general counsel;



A. W. MORRISON, Socony-Vacuum Oil Co. 2nd vice-president of the Association presided at Monday afternoon session

and a paper on "A Fly Control Program" by Dr. Harold Gunderson, extension entomologist, State Extension Service, Ames, Iowa. Alvin H. Berndt, City National Bank, Chicago, was to speak on "Talking Business," and a symposium on the current situation regarding disinfectants, led by L. J. Oppenheimer, West Disinfecting Co., Long Island City, N. Y., was scheduled to complete the program for the morning. During this symposium, John W. Klimek, Sterling-Winthrop Research Institute, Rensselaer, N. Y. was to speak on evaluating the germicidal activity of a quaternary ammonium compound, and Dr. W. S. Mueller, Department of Dairy Industry, Mass. State College, Amherst, Mass., was to further discuss quaternary ammonium compounds as sanitizing agents for the dairy industry. Dr. L. H. James, The James Laboratories, Chicago, was to complete the symposium on disinfectants, presenting studies of bacteriostatic germicidal properties of quaternary disinfectants.

The afternoon session on Monday was to be devoted to technical papers on insecticides and weed killers with Dr. Alfred Weed, John Powell & Co., New York, chairman, Insecticide Scientific Committee, to talk on insecticide scientific developments, and S. A. Rohwer, assistant chief, Bureau of Entomology & Plant Quarantine, U. S. Department of Agricul-

ture, Washington, to indicate what's ahead in insecticides. The full text of Mr. Rohwer's talk appears elsewhere in this issue.

Continuing the afternoon's program on insecticides was a paper to be presented by H. A. U. Monro, in charge, Fumigation Laboratory, Department of Agriculture, Montreal, Canada, entitled "DDT Residues — A Study of their Effects on Various Types of Surfaces and Materials," and a paper, "Testing Residual Sprays—A Review of Proposed Methods," by Dr. M. W. Doner, J. R. Watkins Co., Winona, Minn. See Page 139 for full text of Dr. Doner's paper. A discussion on weed killers, entitled "Technical and Commercial Aspects of 2,4-D" by Dr. L. W. Kephart, in charge, Weed Investigations, U.S.D.A., Beltsville, Md., was to complete the Monday afternoon insecticide session. A. W. Morrison, Socony-Vacuum Oil Co., New York, second vice-president of the Association, was to preside at this session.

**A** RATHER varied program was in order for Tuesday morning, June 10th, over which Gordon M. Baird, Baird & McGuire, Inc., first vice-president of the association, was to preside. First on this program was to be a report of the Disinfectant Scientific Committee on disinfectant developments presented by Jack Varley, Baird & McGuire, Inc., St. Louis, chairman, Disinfectant Scientific Committee. This was to be followed by a symposium on floor waxes led by M. L. Magee, T. F. Washburn Co., Chicago, one paper scheduled for this symposium, on wax emulsions, was to be presented by C. S. Kimball, Foster D. Snell Inc., New York.

Newer synthetic insecticides were to be discussed by E. F. Knippling, in charge, Division of Insects Affecting Man & Animals, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture; and a second symposium, led by T. E. Alwyn, American Can Co., New York, on the container outlook featuring small containers and steel drums. In this symposium, George Henschel, American Can Co., New York, was to discuss small containers



and Gordon D. Zuck, Inland Steel Container Co., Chicago, was to discuss drums. The morning session was



GORDON BAIRD, Baird & McGuire, Inc. 1st Vice-president presided Tuesday morning

to be completed by a discussion and film on the Air Force Incendiary Program by Brigadier General E. Montgomery, Air Chemical Officer, Army Air Force, Washington, D. C.

Business sessions, other than committee meetings, were not to be scheduled for Tuesday afternoon, but members and guests were to get together informally for a cocktail party followed by an informal dinner, Tuesday evening, in the ballroom of the Edgewater Beach Hotel.

The final session of the thirty-third mid-year meeting of the Association was to be held Wednesday morning, June 11th, with N. J. Gothard, Sinclair Refining Co., Chicago, president of the Association, presiding. J. A. Jenemann, E. I. du Pont de Nemours Co., Grasselli Chemical Dept., Wilmington, was to discuss insecticide raw materials, and Dr. Nicholas M. Molnar, Fine Organics, Inc., New York, was to speak on a new mothproofing larvacide. The role of triethylene glycol in sterilization was to be presented by L. D. Polderman, Carbide & Carbon Chemicals Corp., New York, and A. C. Miller, Gulf Research & Development Co., Pittsburgh, was to complete the program on technical presentations with a talk on the testing problems facing the household insecticide industry.

In addition to the papers presented in full elsewhere in this issue,

only two other papers reached us at press time. Harold Gunderson, reporting on the fly control program in Iowa, stated that last year's results were highly satisfactory. Stores and food-handling establishments reported a "complete absence" of flies throughout the "entire summer" season. The fly control program in Iowa was based on two weapons: sanitation and the use of DDT, and included the elimination of fly-breeding places in and near the cities, and the application of DDT inside food handling establishments, around garbage cans, in alleys, stockyards, rendering plants and garbage dumps. A 5 per cent xylene emulsion was used in food handling establishments and periodic application of dilute wettable powder sprays were used in alleys and other fly breeding places. Rural fly control required more work and a slightly broader setup because of the sanitation problem involved with animal wastes on the farms. In addition to eliminating waste piles, the farmer used a 50 per cent DDT wettable powder of 2½ per cent concentration in a water-base spray for buildings and a more dilute spray for cattle. A single application on buildings was reported successful but the cattle needed from three to five sprayings. The results of this work were reported as very gratifying; livestock looked better, produced more milk and gained weight faster.

Spraying in towns was done by non-commercial operators and the minimum cost per town for the program was around \$75 to \$100, the program in Ames costing approximately \$400, however.

Considerable amount of organizational committee work and publicity were necessarily preliminary to the spraying and clean-up, and the setup and functions of such committees were discussed by Dr. Gunderson. The committees have three important jobs: education and publicity; sanitation and clean-up; and instruction regarding, and carrying out of the spraying work.

Dr. Gunderson outlined the progress that is being made so far this year with the program and pointed out that manufacturers and distributors of DDT and other new insecticides

could aid these programs most by keeping in close touch with the results of the various state experiment



LEONARD O'PENHEIMER, West Disinfecting Co. led symposium on disinfectants

station researches, by not being misled by false or exaggerated claims, and by conforming as closely as possible to state recommendations regarding labels.

In summarizing his report on air sterilization by means of triethylene glycol, Mr. Polderman stated that sufficient tests have now been run to prove conclusively the effectiveness of glycol vapor, if properly used, in reducing the number of pathogens in the air. Indicating that the rate of bacteria destruction was very rapid, he pointed out that laboratory tests on beta hemolytic streptococcus indicate that about 85 per cent of the bacteria are killed as they are sprayed into the air and the remaining are killed within two minutes after spraying. Pneumococcus is killed even more rapidly while staphylococci are somewhat less sensitive. Mice were protected by glycol vapor against lethal concentrations of influenza virus even during the spraying of the virus into the rooms.

Field tests also prove that reductions ranging from 50 to 80 per cent in bacteria count were effected by proper use of glycol vapor against bacteria infection in air. Dust borne bacteria accounted for lower results in the field tests, and it was found that dust control measures in conjunction with the use of glycol vapor are of questionable advantage in crowded quarters or against viruses.

*General Chemical Research Presents*



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Brands of STABILIZED SULFURIC ANHYDRIDE

**General Chemical Company**—America's pioneer with the Contact Process for manufacture of high strength sulfuric acid and oleum—makes another major contribution to Basic Chemicals for American Industry with SULFAN . . . Anhydride of Sulfuric Acid.

By perfecting new methods of stabilizing Sulfur Trioxide, General Chemical Research takes an invaluable chemical tool off the shelf of laboratory curiosities and brings it to the Process Industries as a chemical of commerce for use in a host of ways.

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Experimental samples and further technical information are available on request from General Chemical Company, Research and Development Division, 40 Rector Street, New York 6, N. Y.

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1. For fortification of spent oleum, making possible a ready supply of any strength oleum.
2. In benzenoid sulfonations for elimination of mixed sulfonates: meta- only or ortho- and para- derivatives only are formed.
3. For di- and poly-sulfonations of aryl compounds.
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5. For sulfonations in the presence of a solvent, thus eliminating the removal of  $H_2SO_4$  necessary when oleum is the agent.
6. For formation of addition compounds with amines, valuable in organic synthesis.

Sulfuric Anhydride exists in three chemically equivalent physical modifications as indicated by data below. General Chemical's stabilized product is almost entirely Gamma-Form and its partially stabilized product is largely Beta-Form.

PROPERTY	GAMMA-FORM	BETA-FORM	ALPHA-FORM
Description	Ice-Like	Asbestos-Like	Asbestos-Like
Equilibrium Melting Point (°C):	16.8	32.5	62.3
Density (20°C)	1.9255	—	—
Sp. Ht. (cals/gm) (20°C)	0.77	—	—
Ht. of Fusion (cals/mol)	1,800	2,900	6,200
Ht. of Sublimation (cals/mol)	11,900	13,000	16,300
Ht. of Dilution (cals/mol)	40,340	—	—
Vapor Pressure (mm.)			
0°C	45	32	5.8
25	433	344	73
50	950	950	650
75	3,000	3,000	3,000

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# What's Ahead *for* Insecticides

By S. A. Rohwer\*

Bureau of Entomology and  
Plant Quarantine

**M**AN has been fighting insects since his creation; he will continue this war through the years to come. The fight against insects which attack and annoy man, destroy his household possessions, infest his home, food, and clothing, and those which affect the health and comforts of his pets has been the basis for the development of the household insecticide industry. The continuation of that industry will have the same basis for its existence. Its future depends largely on the manner in which the industry performs and the service it renders.

To my way of thinking the future is bright; the possibility of real service is greater today than ever before. Effective materials mean greater use; greater use means larger markets and more business. For centuries man considered insects as curses that had to be endured. Only few made any real effort to combat these pests. Bedbugs, lice, cockroaches, fleas, flies, moths, mosquitoes and many other common household insects have thrived unchallenged in many sectors and homes. One needs only to recall the days following V-J day when DDT was released to get some idea of the

potential number of new users of household insecticides. In those days thousands of housewives were clamoring for information and materials for the control of insect pests. Getting the public conscious of these and other pests, and providing products which produce results will increase demand. Reducing the number of roaches, flies, and their kind to few makes those few less welcome. One or two flies will provoke more action than ten times that number.

Eliminate the one or two that cause this unusual action. Then, where do we go from there? Let's worry about that when the time comes; it's a long way off. The reproductive possibilities of all our common household pests are enormous. The many kinds of places and conditions under which they may survive are surprising. If any one of them were eliminated from any section it would be an achievement of which we could be proud. It has been said this can be done, at least with certain pests. The bedbug is one of these. Perhaps, but to me eradication means the last one. This means those in the chicken house as well as in the home, and protection from all avenues from which reinfestation may occur. We are a long way from the day when that

tribute will be paid to this long-time "companion" of man.

If the war against the insect enemies which affect our health and our comfort and destroy our possessions is to continue, we may well inquire how the battle goes and what is the outlook for the future. The bright outlook depends largely on the better realization of their importance and the belief that something can be done to win the fight.

Recent developments in insecticides and the means by which they may be applied have been phenomenal. The advent of these new materials and devices has created some uncertainties. It is not easy to determine where all of them fit into the scheme of things, and what we should do with those we used before. Confusing though it may seem it also presents a challenge and demand for appraisal of facts, not fancies. As we go forward let's be sure that the ground ahead is sound before we march on. There is no doubt that opinions will differ and that interpretations will vary. I make no claim that my ideas are correct. Challenge them as you wish. If they provoke thinking they will have served a purpose. It was with this thought I accepted the invitation to present them.

## New Insecticides

The search for better insecticides has been going on for years. Conditions created by war stimulated these efforts and resulted in directing unusual attention to the field of insecticides which could be used to combat insects injurious and annoying to man. The recognition of the urgent need for materials that were more effective, that could be used safely, brought many agencies into the program—entomologists and chemists to locate and develop materials, pharmacologists and physicians to determine if they could be used without health hazards, to mention a few. Within a short period much was accomplished, and standards for use and safety were crystallized. The effect of these wartime developments will be far-reaching. Several new materials were developed, new practices of control came into use, and one new insecticidal chemical gained recognition and adop-

\* Before the National Association of Insecticide and Disinfectant Manufacturers, Chicago, June 9, 1947.



tion based on research findings, only some of which have been published. This product and a variety of other compounds which were brought to light and partially tested have caused some confusion and disturbed many. What all this means and the effect it may have will be easier for history to record.

The one material, DDT, that received recognition and adoption, good as it is, has importance deficiencies. It is selective; it is slow acting; although not highly toxic or an acute poison, it is more poisonous than some well known materials. It persists, a valuable attribute, but one which presents many problems associated with use. Whatever its shortcomings it stands well above other new materials as an influencing factor in the control of many well known enemies and pests of man and his household.

The cooperative public health program inaugurated and being developed and expanded around the use of DDT will have far-reaching effects. One of these will be on the insecticide industry. It will no doubt contribute greatly to a reduction in insect abundance in many situations. This does not mean a reduction in the use of insecticides. To me it means an increasing demand and use, not only use of DDT insecticides but of other materials which will supplement and complement it.

One of the important features which will result from and be associated with these programs will become more apparent in the not too distant future. It will demonstrate the benefits that result from good control practices and will illustrate the advantages of community effort.

Early recognition of the usefulness of DDT in controlling insects of major importance to the health and comfort of our fighting forces prompted intensive studies to determine its possible effect on man. These investigations were concerned with the technical chemical and the various materials used with it for specific purposes. Adequate as they were for the immediate needs, there were many questions not considered. Some of these are still far from answered, and it may be some time before data are

accumulated to provide a basis for the answers. That DDT may be absorbed when it is in some solvents has been



S. A. ROHWER

known for some time. That it may be accumulated in the body, especially fatty tissues, and in secretions such as milk was determined more recently. How, how much, and for how long are some of the still unanswered questions. How dangerous such accumulations may be is yet to be determined. All these questions are of direct importance to insecticide manufacturers. On the answers will depend the usefulness of DDT in many fields. Until the answers are available care must be used. We must continuously be on the alert to be sure that the well established axiom "familiarity breeds contempt" does not result in carelessness and injury which cannot be undone.

**A** CCEPTING this line of thinking for DDT and with all the background of research that has been done on it, what about the newer developed materials? Many of them are more toxic than DDT and for none is the needed background of information available. With them we must go even more slowly, no matter how much more effective the entomological tests indicate they may be. For years we have sought an insecticide which could be used effectively and safely. That is still the goal. In no field of insect control, and it is well to emphasize this, does this apply with equal or greater force than in the household field. We do not have sufficient toxicological data to write satisfactory tickets for the use of such materials

as Chlordane, benzene hexachloride, and chlorinated camphene. Where toxicity is as great as or greater than that of DDT, and for the three mentioned this is the case, we should not yet accept the material as the answer to our problem, even though it does not persist. If performance is better, it may also mean that the cautions for use should be greater, perhaps of a class that requires trained operators for application. Some less toxic close relatives and analogs of DDT are of interest, but there is still much to be learned about them before their place can be appraised.

All this means that to my way of thinking we are still a long way from discarding materials which have well established records of safety and performance. Pyrethrum is one of these. Discard it, and we ignore also one of its good qualities not yet replaced—the characteristic of activating many kinds of important insects. This in itself has a value which means that pyrethrum will have a place in household insect control for years to come. It has no close, satisfactory, safe competitor in sight. With the demand for more effective control that will come with more extended use, there seems little reason to expect that the requirements for pyrethrum will lessen materially. Uniformity and high quality of flowers at reasonable prices are factors of prime importance to its future. If these are established and maintained, the urge to find and develop a competitor will lack the support of necessity. Uncertainties as to supplies, however, will continue to stimulate research to develop ways to produce pyrethrins synthetically. Recent studies suggest this may be accomplished.

Another naturally occurring insecticide, rotenone, has a number of important uses in the household insecticide field. Some of these remain unchallenged—the control of fleas on cats, to mention one. There is, however, it seems to me, considerable uncertainty as to whether this insecticide will continue to gain in favor and use as it was doing before the war. It may and in all probability will have a place. The outlook for its continuing to hold even part of the volume

of prewar use in the household field is doubtful, however. Here again quality and price will be important factors.

### Formulations

**N**EW and old toxicants in themselves do not make finished insecticides. To be used they have to be formulated or mixed with other materials. This is true whether they are applied in the diluted or concentrated form, in practically all cases. The importance of proper formulations is only beginning to be recognized. Recent publications and the results of work not yet published emphasize that materials which have usually been classified as inerts may play a significant part in the effectiveness of the finished product. Sometimes they improve it, at other times they act solely as diluents or carriers. In other cases they may even destroy the toxicant or make it inactive. The same material may behave differently with different toxicants. What is true with so-called "inerts" is even more to the point with solvents, wetters, spreaders, and emulsifying agents.

Important as formulations may be from the standpoint of entomological performance, they are also significant from another point of view. This is in the field of law enforcement and labeling. We have long classified insecticidal materials into two categories—active and inert. It is fair to assume that in the not too distant future this may become as obsolete as some of the insecticides which have passed into history. Where this will lead us is not fully clear. Until more facts are assembled it seems unwise to go so far as to say full formula disclosure is the only answer to satisfactory labeling. That means accurate and detailed citation of the constituents of coloring or masking agents that may be used in minute amounts. The use of such information would, in light of present knowledge, confuse rather than clarify the label for the purchaser. For the entomologist, chemist, and industry it would introduce numerous problems and complications for no good purpose or benefit.

The significance of detailed attention to materials used in formulating insecticides, however, is not

confined to entomological performance or its possible effect on labeling. If various combinations are more toxic to insects, they may also be more toxic to man. More than that, some of the materials may, even in themselves, be toxic or highly objectionable to the user. It is well established that some entomologically satisfactory solvents for certain of the new toxicants have properties which make them objectionable, if not worse, for use in household preparations. The same may also be said in reference to insecticidal formulations used on animals.

All this adds up to the need for thorough study of the formulation of insecticides and the careful appraisal of all ingredients and the finished product, not from the standpoint of effectiveness alone but also from the standpoint of the safety of the user. All have been conscious of this, and there has been general recognition that the time when various materials could be thrown together and sold as an insecticide is passing. The advent of new toxicants, however, makes full acceptance of this more important. It emphasizes the need for entomologists, chemists, and industry to give more and continuing attention to the formulation of insecticides. It is a scientific undertaking, and must be so recognized. The scientist and technician should be responsible for the job.

### Devices

**O**NE important consideration in the outlook for use of some of the newer materials, and even for the older ones, is the kind of devices that may be provided for their application. The days of volume use of insecticides with low percentages of toxicants are numbered. New ways of applying concentrated materials are being developed; not rapidly enough, however, as this segment of pest control

has not advanced as it should. Means of applying residual deposits of toxicants without use of carriers or diluents, which in themselves mean little and may even be objectionable, are around the corner. There is much to be done. As we get more proficient with the materials we now know, we are going to have to be alert to see that devices are improved, adapted, and developed for their use. These must be efficient if they are to be used. Their use is directly related to the demand for materials to be applied. If I couldn't see improvements in the field of devices for applying insecticides I would lose much of my assurance that the outlook for household insect control is bright.

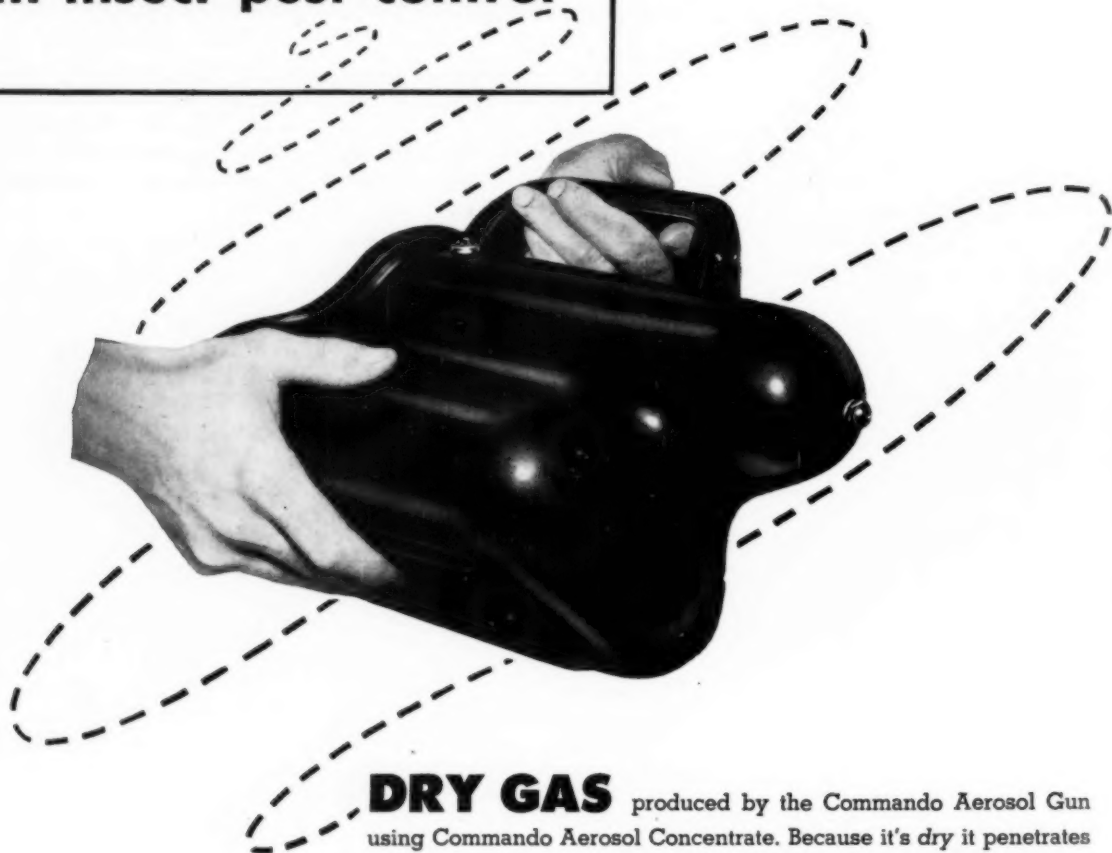
### Aerosols

**R**ESearch conducted shortly before our country entered the war resulted in the invention of a method of distributing fine particles of insecticides by dissolving toxicants in liquefied gas held under pressure. When the pressure is released, minute particles of the active insecticidal materials are propelled into space and distributed with surprising uniformity in amounts effective throughout a considerable area. Many of the toxicants so distributed which were effective against insects were irritating or toxic to man. The same was true for the gases that could be used to propel them. There remained to be found effective combinations which could be used with safety. The use of a safe, odorless gas already well known and widely used brought a prompt answer to the question of a good, safe propellant. There remained to be perfected a toxicant in a concentrated form which could be used with it. Chemists provided the answer by finding ways of improving a well known

(Turn to Page 169)

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# Testing INSECTICIDE RESIDUES

## A Review of Methods

By Dr. M. W. Doner\*

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THE concept of residual toxicity or the continued killing effect of an insecticide has been known to entomologists for many years. The toxic principles of pyrethrum, cube, derris and related plants possess this property but for short periods of time. Their residues are readily affected by air, sunlight and moisture. The discovery that residues of DDT keep this ability to kill many species of insects for extended periods of time has presented a means of insect repression hitherto unobtainable by the conventional contacticides that give only initial or temporary control. This property of residual action obtains also for certain other materials, notably hexachlorocyclohexane or benzene hexachloride, chlordane (available commercially as "Velsicol 1068" and "Octa-Klor"), "Toxaphene" and piperonyl butoxide.

The Insecticide Scientific Committee of the N.A.I.D.M. has alerted itself to the need for developing specifications covering the testing of residual treatments, at the present time with reference to surfaces other than livestock and poultry and specifically to residues other than those which kill by fumigant action. As a basis on which to proceed, the testing methods used in 19 different laboratories were studied. The presentation to follow sets forth some of the problems encountered in evaluating the toxicity of insecticidal residues and considers the

extent to which the methods in current use evaluate these problems.

Three types of DDT formulations are used for the treatment of surfaces for prolonged killing action of certain insects:

- (1) wettable powders containing up to 50 per cent of DDT,
- (2) oil emulsions containing at least 25 per cent of DDT, and
- (3) oil solutions containing up to 5 per cent of DDT.

The powders and emulsions are diluted with water to give a DDT content of from 0.1 to 5.0 per cent depending upon the species of insects to be controlled, density of population and other factors. The oil solutions are used without further dilution. Since insects are affected differently by each type of DDT formulation, testing procedures must be capable of evaluating each of them.

The length of time DDT spray residues continue to kill insects is related to several factors:

- (1) *The amount of DDT deposited on a given area of surface.* In general, deposits of 100-200 milligrams of DDT per square foot of surface are considered most effective and long-lasting. This quantity is obtained by the use of  $\frac{1}{2}$  1- pound of 50 per cent DDT powder suspension or 1 pint to 1 quart of 25 per cent DDT emulsion to 1 gallon of water when applied to 1000 square feet of surface area.
- (2) *The type of surface treated, that is, whether it be porous or relatively non-porous.* Observations indicate that wood, brick, stone, concrete, plaster, paper and other absorptive surfaces require nearly three times as much DDT as do smooth, relatively non-porous surfaces.
- (3) *The quality of light consistently falling on the treated surface.* For

instance, the duration of the toxicity of DDT residues to mosquitoes is reduced by about 50 per cent when exposed to direct sunlight.

- (4) *The presence of chemical agents.* Alkali salts and alkali, aluminum, chromium and iron, in the spray alter the toxicity of the DDT residue.
- (5) *The size of the particles of DDT with which insects come in contact.* In general, toxicity increases with decreasing particle size, this being related to the type and physico-chemical properties of the formulation used.

Much of the early laboratory data on the toxicity of DDT deposits were obtained by liberating houseflies into cages, one or more sides of which were treated with a determined amount of DDT. Present procedures employ treated panels on which flies are allowed to crawl or rest, the advantage being that surfaces having different physical characteristics can be studied on a comparative basis.

IT is important to recognize a fundamental factor affecting the accuracy of all of the test methods currently in use. This difference is based on the extent to which the test insects are allowed to crawl and rest on a treated panel. In some test methods, flies are forced to remain in practically constant contact with the treated surface while, in others, they are at liberty to walk on either a treated or an untreated surface. Obviously, the speed of knockdown and the percent kill of flies is greater when they are in continual exposure to the insecticide during the test period than when they are allowed to spend part of the time on untreated surfaces. It is entirely

\* Before Natl. Assn. Insecticide & Disinfectant Mfrs., Chicago, June 9, 1947.

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possible that an insecticidal composition could have characteristics which would cause the insects to avoid the treated surface. This would result in increasing the time required for the insects to become affected by the chemical or might prevent them from obtaining a toxic dose in practical control operations where only certain areas or surfaces are treated with the insecticide. For instance, it is commonly recommended that DDT sprays be applied to windowsills, light cords and other areas where flies prefer to rest or crawl. It is quite another matter when all surfaces are treated so that contact with the toxic residue is unavoidable except during flight.

As previously indicated, all laboratory methods for studying insecticidal residues involve the use of a treated surface. It may consist of painted or unpainted plywood, sheet aluminum, glass, screen wire or various types of paper. Many of the methods studied were obviously designed to study the effect on toxicity of DDT spray when applied to different types of surfaces. The information obtained by these methods is of practical interest, as for instance, the effect of white-washed surfaces on the toxicity of DDT. Such matters as repellency, information on special formulations and types of surfaces as related to porosity, also present special problems that require separate attention.

A survey of the methods indicates no agreement on the size of the testing panel. In general, panels six inches square or one-quarter of a square foot are employed.

A given quantity of the insecticide is applied to the panel with a camel's hair brush or by means of an atomizer. In more refined techniques, where particularly accurate results are desired, a special spraying device ejects the spray as a fine fog into a spraying tower. A very uniform deposit is thus obtained as demonstrated on surfaces treated with sprays to which dyes have been added. When studying a series of formulations it is more important to know that each disc or panel has the same amount of residue on its surface, rather than to know what this amount actually is. The treated panels are usually allowed to

dry before use with test insects, the length of drying time depending upon the density of the residue and the physical properties of the diluent.

As I have said, one group of methods gives the flies a choice of walking or resting on the treated or the untreated surface, while other methods make contact with the residue unavoidable except during flight.

In the first or "Free-choice" methods the flies are confined to cages the undersides consisting of the treated panels. The cages may be wide-mouthed, screen topped Mason fruit jar lids (which have the advantage of being readily constructed and easily freed from insecticide contamination by washing in solvents or by heating), soup strainers with the handles removed, or any other type of cage that may be desired. Or, the treated panel may be suspended inside a cage charged with flies or substituted for one or more sides of a standard cage.

**I**N the "No-choice" methods, where the test insects are not necessarily in continual contact with the insecticide, several investigators employ cages constructed in such a manner that the sides, top and bottom can be substituted with treated panels. Two laboratories use cardboard panels, the edges of which are folded upward to form a box and fixed by wire staples or fitted into an outside frame. A piece of glass serves as the top or cover. It is noteworthy that the flies tend strongly to avoid the glass and are therefore in almost constant contact with the treated cardboard surface.

The length of time required for different amounts and different formulations of DDT to cause flies to drop or be "knocked down" is a matter of scientific and practical importance. For example, we are interested in knowing how long a fly will have to remain on a treated surface to be fatally affected and also the amount of toxic residue that must be applied to a surface to effect practical control. In testing the conventional household fly sprays, the speed of knockdown, within limits, gives an indication of the toxicity of the material. Flies which are not knocked down are considered to be unaffected. With certain

types of residual insecticides, however, flies may appear to be unaffected after long periods of constant contact with the toxicant, but yet may be fatally affected by a relatively brief exposure. Testing procedures must therefore be designed to evaluate both the knock-down and killing efficiency of the insecticide. Consider the observations of Lindquist and his associates†, where flies were exposed for one minute in small wooden boxes which had been sprayed at the rate of 125 milligrams of DDT per square foot. The flies did not drop before two hours, yet a high mortality was obtained. In tests run 28 days after spraying, the kill was 77 per cent; at 207 days the kill had dropped to 27 per cent. With five minute exposures, 96 per cent of the flies died in tests conducted 28 days after spraying, and 75 per cent at the end of 207 days.

The problem of testing insecticide residues is further complicated since a fly may be paralyzed one minute and up again the next. Many workers who have had considerable experience in testing DDT residues feel that a fly which remains on its back for a period of ten seconds should be considered "down." Knockdown readings are made at periodic intervals beginning when the treated surface has dried. One worker may take his readings at 30 to 60 minute intervals until all the flies are down, another at one-half, 1, 2, 3 and 4 hours, or at 15 minute intervals during 3 to 4 hours. The accuracy of taking knockdown readings until all of the flies are down, however, has been questioned since, in any group of test insects, there are certain resistant individuals that require more time to become affected by the insecticide. When only 10 to 20 flies are used in a test, these hardy individuals could significantly "throw off" the results. Such inaccuracies are avoided by taking frequent counts until 50 per cent of the insects are down.

While in general it may be said that any flies reduced to a moribund or semi-moribund condition by DDT are doomed to die, can we not assume that there might be certain residual-acting insecticide materials from the effects

† Jour. Ec. Ent. 1945, Vol. 38 (2):257-265.



★

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of which insects may recover? With formulations containing a low percentage of DDT and fortified with a fast-acting insecticide such as pyrethrum, a rapid knockdown of flies could be expected, perhaps before the DDT has had a chance to exert its full toxic action. If so, it would appear reasonable to supplement knockdown readings with actual determinations of mortality. Actually, this is being done by most investigators. Some workers remove the flies from the test cages as soon as all are "down," others allow the flies to remain in contact with the treated panel during the entire 24 hour period. This condition, however, seldom occurs in practical sprayings of barns and houses.

**T**HE comments set forth up to this point apply to tests conducted with freshly applied and dried toxic residues. We have now to consider ways and means of evaluating these residues at periodic intervals until the knockdown and killing efficiency have been reduced to significantly low levels. Again, it is a matter of deciding upon the amount of toxic residue to be deposited on a surface, the duration of the exposure period and of carefully considering the other factors which might affect the toxicity of the deposit. We know that 100 to 200 milligrams of DDT per square foot will kill flies for many months, especially when applied to a relatively non-absorbent surface and that 4 to 15 milligrams of DDT per square foot will lose toxicity within two weeks. We also know that the percentage of flies killed declines as the time of exposure to the toxicant is reduced. Therefore, other factors of environment being controlled, the time required to test toxic insecticide residues may be greatly reduced by decreasing the amount of toxicant deposited upon the test surface and by adjusting the exposure time period.

Several laboratories have developed so-called "Micro" methods for studying DDT residues. In one laboratory 2" x 2" lantern slides, fastened into two groups of three with scotch tape, are sprayed and formed into a testing cage. In another laboratory petri dishes, including the glass tops,

are sprayed on a constant speed turntable revolving at 3 m.p.h. Four replicates are used for each spray dosage.

After a consideration of the methods studied, we have been using a testing procedure modified after the method used by Dr. Waters of Sherwin-Williams. Porous and non-porous cardboard testing panels 6" square are sprayed with a special micro sprayer mounted over a settling-mist tower. Depending upon the type of formulation to be tested, each panel is coated with a like deposit of from 4 to 15 milligrams per square foot. Considering Dr. Froelicher's calculations that only 0.00001 (one-one hundred thousandths) of a microgram of DDT per square centimeter is sufficient to kill a fly, it is obvious that the dosage on our panels is well above a minimum lethal dose. It is felt that loss in toxicity with lower dosages would be too rapid to obtain accurate results. After spraying, the panels remain in the tower for a period of five minutes to allow ample time for the mist to settle. After drying, the edges are folded upward along scored markings and fastened with wire staples to form a box 1 inch high. A square of glass serves as a cover.

Methods of studying toxic residues in current use are designed to obtain comparative data concerning knockdown and killing efficiency of DDT sprays without reference to a standard insecticide. By using a standard or reference insecticide, as in Peet-Grady testing of the conventional household sprays, it is possible to obtain plus and minus values for the purpose of assigning grades or ratings to the residues being evaluated.

In our laboratory two methods of obtaining ratings for knockdown efficiency are employed, both based on the resistance of the average fly to the insecticide as expressed by the figure showing 50 per cent knockdown. In the first method the average time required for the replicates of each unknown and the Reference Insecticide to effect a 50 per cent knockdown are determined on each date of testing and plotted on a graph. The toxicity of the deposit is lost as it ages and is reflected in an increased time required to cause 50 per cent of the flies to be

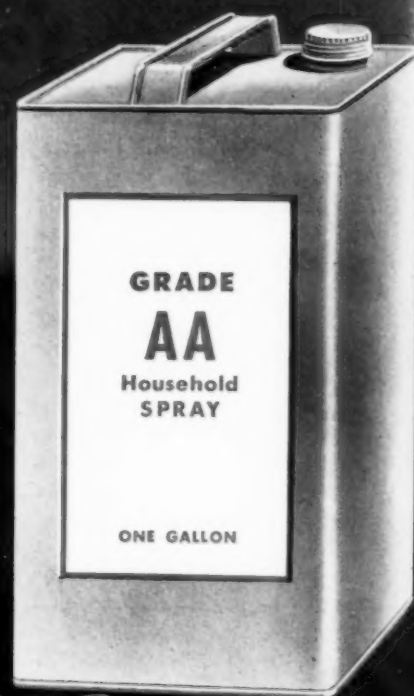
knocked down. As a point for critical comparison, the 50 per cent knockdown at the time limit of 60 minutes was selected arbitrarily. Above this the insecticide is considered unsatisfactory. *Ratings are based upon the difference in age of deposit at which the unknowns and the Reference Insecticide produce 50 per cent knockdown at 60 minutes.* If the unknown produces 50 per cent knockdown at 60 minutes on a testing date *before* the Reference Insecticide, it assumes a minus rating; if on a testing date *later* than the Reference Insecticide, its rating will be a plus value.

The second method of obtaining knockdown ratings is based upon the difference in the age of the deposit at which the Reference Insecticide and the Unknown cause 50 per cent of the test insects to be knocked down, the exposure period being one which will just cause 100 per cent of the flies to be knocked down by the Reference Insecticide on the initial date of the test. All succeeding knockdown readings are taken at the same time interval. If the unknown insecticide effects a 50 per cent knockdown on a testing date before the Reference Insecticide, it assumes a minus rating; if on a testing date later than the Reference Insecticide, its rating will be a plus value. This method is much easier to perform since a standard exposure period is determined on the first date; all future knockdown readings being taken at the established time interval and the loss in toxicity seen in a decreased per cent knockdown.

The killing efficiency of insecticidal residues is determined 24 hours after an exposure period determined to be just sufficient to result in 100 per cent kills of flies with each of the three types of formulations on the initial date of the test. Since flies vary individually in resistance to toxicants, the average fly in the test group is represented in a 50 per cent kill. A 50 per cent kill following the standard exposure period will not necessarily result on any one testing date, but may be determined to result at a given point in time between the two testing

(Turn to Page 193)

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# QUATERNARY AMMONIUM GERMICIDES—

a discussion of methods  
for their evaluation



QUATERNARY ammonium compounds have several striking advantages for certain disinfectant uses: they are colorless, or nearly so, practically odorless, have very little taste in the dilution employed, their oral toxicity is low, in the dilutions employed they cause no primary skin irritations, and the low surface tension and detergency of their solutions help to insure adequate contact with the surfaces to be disinfected. Consequently there is great interest in the problem of evaluating their bacteriological effectiveness and many new methods of test are being studied, especially in a program now being carried on under the leadership of the Department of Agriculture (1) and the Disinfectant Scientific Committee of the National Association of Insecticide and Disinfectant Manufacturers.

Recently there has been widespread recognition of the fact that the phenol coefficient of a germicide as determined by the original F.D.A. method (2) does not afford a reliable guide to the disinfectant properties of germicides which differ chemically from the phenolic or cresylic type (3), (4), (5), (6). Since the phenol coefficient is valid only for the test organism used, it is of little significance in practical applications, where a mixed bacterial flora may be present. As has been pointed out by Klarmann and Wright (3,4) and others (7,8), germicides of other types, especially the quaternary ammonium compounds,

when tested by the phenol coefficient method often give inconsistent results. This is due to the appearance of "skips"; that is, growth is permitted occasionally by a concentration higher than some of the concentrations which kill the test organism.

Various explanations have been proposed for this anomalous behavior of the quaternary ammonium salts. The high degree of bacteriostasis exhibited by these germicides is doubtless partly responsible. Klarmann and Wright (3) have suggested that the high surface activity of the quaternaries causes the organisms to migrate to and become attached to the walls of the vessel, and that consequently the loop samples taken from the middle of the seeding mixture are not representative of its contents. It seems doubtful that this can be the sole factor, since the presence of beef serum causes a marked reduction in the apparent germicidal activity of quaternary ammonium compounds, yet the surface tension of a solution of the germicide in 10 per cent serum is even lower than that of a corresponding dilution of the germicide in water.

Soaps and certain other organic materials also reduce both the surface tension and the antibacterial activity of quaternary ammonium salt solutions. These observations do not con-

form with Klarmann's theory, and conflict with the generally held belief that "anionic" surface active agents react chemically with cationic agents to give products neither surface active nor germicidal. The mechanism causing the observed lower antibacterial activity of quaternary ammonium germicides in the presence of these materials is still obscure. A precipitate appears in nearly every such mixture, although it may sometimes be so finely divided as to escape observation by ordinary inspection. It seems likely that the lower antibacterial activity observed in the presence of serum may be due to electrostatic attraction of the bacteria to the particles of this precipitate; or a portion of the germicide itself may be rendered inactive by adsorption on the precipitate.

If, under the conditions of the F.D.A. test, the bacteria are caused to move to the walls of the vessel in the presence of a surface active agent, it might be expected that the nature of the vessel walls may modify this action. In Table I it is shown that approximately the same dilution was found to be lethal whether the seeding tube used in the test was composed of glass, various metals, plastics, or paraffin.

In further exploration of the question of migration of the organisms to the vessel walls, tests were

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**TABLE I**  
Killing Dilutions of Quaternary Ammonium Salt A on *Staphylococcus Aureus* Using FDA Technique at 37° C. in Different Types of Tubes

Paraffin Seeding Tubes	Lusteroid Seeding Tubes	Lead Tubes	Aluminum Tubes	Tygon Tubes	Pyrex Glass Controls
1:70,000 to 1:80,000	1:40,000 to 1:60,000	1:70,000 to 1:105,000	1:50,000 to 1:100,000	1:70,000 to 1:125,000	1:70,000 to 1:110,000

made by the F.D.A. technique, with minor modifications as shown in Table II. It will be noted that when a glass bead (which could be considered as a part of the medication tube wall) was substituted for a loop as the inoculum for the subcultures, some decrease in killing dilution was observed. The results of the tests in which the medication tube was shaken once just before the inoculation of the subculture seem to suggest the possibility that in a quiet tube some bacteria do escape exposure to the germicide by migration to the vessel walls, as described in a later paragraph, and by shaking the tube are made accessible for transfer by the loop to the subculture. Continuous shaking during exposure to the germicide seems to facilitate lethal contact of the germicide with the organisms present, with a corresponding increase in the observed killing dilution.

**I**N assessing the significance of proposed test methods, it is, of course, necessary first to establish what properties are desirable in a disinfectant. Power to kill microorganisms in the vegetative form can be considered to be only one of the functions of an effective disinfectant. Many pathogenic bacteria are capable of a transformation into the highly resistant spore state. However, since bacteria do not multiply in the spore state, and can resume growth only when a favorable environment has caused their return to the vegetative form, it is very desirable for the disinfectant to exhibit bacteriostatic action in high dilution.

On the other hand, since many pathogenic varieties of bacteria do not form spores, it is important that the disinfectant shall be capable of killing these organisms under the conditions

of use. In this connection it must be recognized that various kinds of bacteria exhibit wide variations in their resistance to chemical disinfectants, even in the vegetative form. In addition to their high germicidal activity, the bacteriostatic effect of the quaternary ammonium compounds complicates accurate determination of the lowest concentration which will actually kill the bacteria. Irregularities in the results by the conventional test methods when applied to quaternary ammonium salts can be largely eliminated by the introduction into the medication tubes of a so called "neutralizer"—a substance which in some way inhibits the anti-bacterial action of the quaternary ammonium salt. There are a number of substances showing this property to a greater or lesser degree. For instance, serum is often used for this purpose and is suffi-

ciently active to suppress the appearance of "skips." Other substances possessing the power of inhibiting the anti-bacterial action of quaternary ammonium salts to some degree are soaps and certain other anionic surface active agents, agar (9), certain types of gelatin, tragacanth, some types of non-ionic detergents and lecithin. The relative inhibitory effects of some of these neutralizers are shown in Table III.

**W**HILE the bacteriostatic effect is far less pronounced in the phenolic type of disinfectant, phenol gives a lower killing dilution in the F.D.A. test when the phenol carried over in the inoculation of the subculture tubes is partially neutralized by the addition of ferric chloride. A strain of *Staphylococcus aureus* killed by a dilution of phenol of 1:80 in the F.D.A. test, was not killed at dilutions greater than 1:60 when ferric chloride was added to the subculture medium.

Quisno, Gibby and Foter (10) have recently proposed a new culture medium, "Letheen," which consists of a standard type of broth to which is added lecithin solubilized by the addition of "Tween 80," a polyoxyethylene derivative of sorbitan mono-oleate, ob-

**TABLE II**  
Germicidal Effect of Quaternary Ammonium Salt A on *Staphylococcus Aureus* Using F.D.A. Technique at 20° C., Modified as Indicated

Modification of Technique	Killing Dilution Range*
F.D.A. method .....	1:60,000 to 1:75,000
4 Glass beads in medication tube, one bead used as inoculum for subculture.....	1:32,000 to 1:42,000
Medication tube shaken once just before inoculation of subculture .....	1:25,000 to 1:40,000
Medication tube shaken during entire exposure period..	1:50,000 to 1:115,000

\* Killing Dilution Ranges represent 4 tests in duplicate

**TABLE III**  
Effect of Various Substances on Germicidal Activity of Quaternary Ammonium Salt A.

Substance Added to Medication Mixture	Killing Dilution Range*
2% Soap .....	<1:3000
10% Beef Serum .....	1:10,800 to 1:13,000
1.5% Agar .....	1:15,000
1% Lecithin .....	<1:3000
2% Non-ionic Detergent G2130 .....	1:7500
2% "Tween 80" .....	<1:5000
Control .....	1:70,000 to 1:110,000

\* Killing dilutions determined against *Staphylococcus aureus* by the F.D.A. technique at 37° C. modified by additions to medication mixture as indicated.



# HOW TO SELL SELF-POLISHING WAX

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**B**RIEFLY . . . forget "selling talk" and get a demonstration.

The average buyer today is more interested in how a wax is going to look and wear on his particular floor than all the "talk" in the world. Give him a demonstration with Candy's DeLuxe and Bright Beauty Self-Polishing Waxes and make a sale!

*Every time your men can put DeLuxe or Bright Beauty on a prospect's floor . . . alongside even a wax that has already proven "eminently satisfactory" . . . you've practically got an order. That's a pretty broad statement to make, we'll admit, but we'll prove it to your satisfaction any time you will give us the opportunity.*

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A "talking point" that has been much overdone. Extremely waterproof materials usually fall down on some important quality . . . particularly in lack of lustre or wash-off quality.

Wax is not a permanent finish like a floor seal. It is a top dressing intended

to take the punishment of traffic and dirt. It should be readily removed when desired. Candy's DeLuxe or Bright Beauty will not "milk" in wet weather, will not permanently water-spot around drinking fountains, washbowls, etc., will stand damp mopping . . . yet can be removed without the use of strong soaps or floor damaging caustics. Both Candy's DeLuxe and Bright Beauty Waxes are approved by Underwriters' Laboratories as anti-slip floor treatments.

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More "talk!" To be really non-skid, a wax would have to be so soft and sticky it would be impractical for use as a floor finish. Tell the truth with Candy's DeLuxe and Bright Beauty . . . that the average person can easily and safely walk on the floor.

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More "talk" to cloud the true issues . . . usually attempted to suggest "cheapness" of a competitive wax. Obviously performance regardless of formulation is of most importance.

The floor treatment business is still growing . . . and so is the competition. How your salesmen meet competition determines whether or not *your* company is going to get a fair share of the available business.

Give your men *facts* . . . about waterproofness, slipperiness, solid content . . . so they can shoot holes in competitive "selling talk." And give them products like Candy's DeLuxe and Bright Beauty that speak for themselves where it counts most—*on the floor*.

#### Sold Only by Distributors

Remember, Candy's DeLuxe and Bright Beauty Products are sold exclusively through distributors. They are packed in attractive containers under your own label . . . never sold direct to the consuming trade (except for experimental accounts in Chicago essential to research.) Candy's DeLuxe and Bright Beauty Waxes are competitively priced, yet can be sold so as to allow you a liberal margin of profit. May we send you an experimental sample?

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tained from the Atlas Powder Company. Ten ml. of this medium completely inhibits the antibacterial action of as much as 1 ml. of a 1:1500 dilution of representative commercial quaternary ammonium germicides.

In Table IV are given the killing dilutions of three quaternary ammonium germicides as determined by a new technique devised in this laboratory. In this method 0.1 ml. of a 24 hr. bacterial suspension is placed in sterile medication tubes, without touching the side of the tube. To each of two such tubes is added 0.9 ml. of the germicide solution to be tested. After intervals of 5 and 10 minutes, respectively, the contents of each tube are poured aseptically into 10 ml. portions of the "Letheen" medium and incubated at 37° C. for 48 hrs. By this method practically all of the medication mixture constitutes the sample for subculture. It is felt that the addition of the organism first is important in ensuring that all of the bacteria added are in contact with the germicide solution during the entire exposure period. The "Letheen" subculture broth suppresses any possible bacteriostatic effect without the use of large volumes or the inconvenience of using serum. The simplicity of the method also makes a minimum demand on the time and skill of the technician.

The data given in Table V were obtained by a method similar to the above in all respects except that the subculture inoculations were made at 55° C. into "Letheen" medium containing 1.5 per cent agar. The subcultures were poured into Petri dishes and incubated 24 hrs. at 37° C. Colony counts, using the Quebec Counter, indicated the number of viable bacteria in the total inoculum, which survived the 10 minutes exposure to the

**TABLE IV**  
Killing Dilutions Determined Against *Staphylococcus Aureus* at 37° C. by a New Technique Using Liquid "Letheen" Subcultures

Quaternary Ammonium Salt A..1:5000 to 1:10,000
Quaternary Ammonium Salt B..1:6000 to 1:17,000
Quaternary Ammonium Salt C..1:5000 to 1:13,000

**TABLE V**  
Quantitative Determination of the Germicidal Effect of Quaternary Ammonium Salt A by a New Technique

Dilution of Germicide	Colony Count
1:8,000 .....	0 to 7
1:10,000 .....	0 to 10
1:12,000 .....	0
1:15,000 .....	0 to 3
1:20,000 .....	0 to 10
1:20,000 .....	13 to 40
1:30,000 .....	69
Control .....	350,000,000

Note: Survival of *Staphylococcus aureus* after exposure to germicide at 37° C. for 10 minutes; entire medication mixture (1 cc) plated in "Letheen" agar.

germicide solution. It will be noted that these results agree closely with those in Table IV. Since sanitation standards usually specify a maximum residual bacterial count rather than complete destruction of the flora, it is felt that this type of test is of more practical significance than a technique which can not distinguish between almost complete killing and no germicidal effect at all.

**T**HE small colony counts obtained in these tests over so wide a range of germicide dilutions suggested the possibility that the germicide was actually lethal to the bacteria in the higher dilutions, but that a few bacteria were escaping adequate exposure in some small portion of the medication tube mixture. Since the surface appeared to be the most likely place for the bacteria to escape exposure, the quantitative test was modified as follows:

One-half ml. of the bacterial suspension, *Staphylococcus aureus*, was placed in the bottom of the medication tube, and 5 ml. of the germicide solution was added. After 10 minutes the mixture was withdrawn with a pipette without touching the side of the tube. "Letheen" agar was then added at 55° C. with a pipette, without touching the side, allowed to solidify, and incubated. The medication tube was maintained in a vertical position throughout the procedure. In one series of tubes 3 ml. of agar was added, which was not sufficient to cover the portion of the tube touched by the surface of the medication mixture. In the other series, 8 ml. of agar was

added, which was sufficient to cover this part of the tube. After incubation the colonies were counted in the tube.

In repeated tests by this method, when the agar level was below that of the medication mixture, results paralleled those obtained by the method of Table IV or indicated greater germicidal potency. No colonies were obtained in testing germicide dilutions up to 1:10,000. In dilutions up to 1:30,000, 0 to 50 colonies were found scattered throughout the agar. On the other hand, when the volume of agar used was greater than that of the medication mixture, colonies were observed even at germicide dilutions of 1:5000, the lowest tested. In the dilutions above 1:10,000 the number of colonies was too great to count. Unlike the preceding series, the colonies in these tests were largely concentrated at the surface and along the walls in the upper portion of the agar.

While this technique is not well adapted for routine testing, the results illustrate once more the complexity of the problem of devising a suitable test for these germicides. This experiment demonstrates that for some reason a few bacteria survive at the junction of the liquid surface and the wall of the medication tube, while none survive in the main body of the medication mixture. This fact helps to explain the observations reported in Table II on the effect of shaking the medication mixture.

However, this work does not afford a basis for a complete explanation of this phenomenon. A similar, but much less marked, effect was observed when this same technique was applied to phenol; i.e. a few surface colonies on the agar were found after exposure to dilutions of 1:80 and higher, when negative tubes were obtained up to a dilution of 1:100 by the method of Table IV. Since surface activity probably plays no significant role here, it may be assumed that a few bacteria close to the topmost boundary of the meniscus are mechanically freed of contact with the solution for part of the exposure time. In the case of the quaternaries it may be possible that the much greater effect is due to

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## Chlordane

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the surface activity of these compounds. It is fairly well established that the lipophilic portion of the molecule is the lethal factor and that the molecules at the surface of an aqueous solution are oriented with the lipophilic portion toward or in the surface. It is conceivable that near the extreme upper margin of the meniscus a significant proportion of the quaternary ammonium molecules present are attracted to the air-water and glass-water interfaces and are strongly oriented with the lethal lipophilic portions toward these interfaces, and hence are not available for killing bacteria that may float to this portion of the mixture. Such a condition would, in effect, amount to a reduction in the concentration of germicide in that region, and would help to account for these observations.

It will be noted that in the presentation of the foregoing data killing dilutions have been given mostly in ranges, rather than as single average numbers. It is the conviction of the authors that the term "critical killing dilution" is a misnomer and that bacteriological test methods are no more precise than most other biological measurements. We feel that if a single figure for such a determination is to have any significance, it must represent the mean of a very large number of tests and must be accompanied by a statement of the standard error obtained in the series of tests in question. Since only a few of the tests reported above were replicated enough times for the calculation of a statistically significant mean, we have reported only the ranges of data encountered.

It is obvious from the data presented above that variations in test methods can produce very considerable variations in the apparent antibacterial power of quaternary ammonium germicides. Therefore, we may conclude that the term "phenol coefficient" has no significance when applied to this class of disinfectants. It seems unlikely that any one standard test method can afford a universally applicable comparison between germicides of different chemical types.

As has been pointed out by Reddish (8), the only reliable basis

for the selection of a germicidal solution for a particular purpose lies in a determination of its effectiveness under the actual conditions for which its use is proposed. Since such tests are usually cumbersome and often beyond the means of the small user, the study of disinfectant test methods should be directed not toward the development of a single standard test, but toward setting up a number of tests corresponding as closely as possible to the conditions met in the various classes of disinfectant applications.

In the light of present knowledge, some generalizations can be made regarding the applications of the quaternary ammonium and the phenolic type of disinfectants in actual use. The germicidal power of the phenolic disinfectant is less diminished by low temperatures or the presence of organic matter than is the case with the quaternaries. The low toxicity and the lack of taste and odor in the quaternary ammonium germicides make them desirable for use where contact with food is involved; the high degree of bactericidal and bacteriostatic activity exhibited by these disinfectants is another very desirable property in such uses. When the disinfectant is to be used on mechanically clean surfaces, the low concentration required for the quaternaries may confer a price advantage as compared with the phenolics, and where taste and odor are of importance in such uses, the other advantages of the quaternaries may well outweigh any possible economic disadvantage.

For medical uses, the low surface tension exhibited by solutions of quaternary ammonium salts presents a definite advantage by facilitating their penetration into crevices and folds of tissues.

It is to be expected that eventually each type of disinfectant can be assigned its own particular field of usefulness—and that these fields will be once more temporarily altered whenever a new and completely different germicide enters the market. When that happens, it will be true then as now that the suitability of the germicide must be determined by test under the conditions of use. A disinfectant

showing value in practical applications should not be rejected simply because present laboratory methods are not adapted to demonstrate its full effectiveness.

### Summary

**T**HE usual "phenol coefficient" test is inadequate for the evaluation of germicides other than the phenolic types. Inconsistencies in tests on quaternary ammonium disinfectants by this method are discussed, and modifications giving more consistent results are described. These inconsistencies appear not to be due to surface tension effects alone.

Data are presented showing the variations in germicidal power observed with several different methods of test.

It is pointed out that no one test method is suitable for all germicides or applicable to all uses of a given germicide. Choice of a germicide must be based on its effectiveness under the conditions of use, and test methods should be devised to simulate these conditions as closely as possible.

The technical assistance of Dr. I. W. Gibby and Mrs. T. J. Duwel is gratefully acknowledged.

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# EPIDEMIC CONTROL

....with DDT, ANTU and 1080

By H. Elishewitz, Ph.D.\*

Consulting Entomologist  
Caracas, Venezuela

## Part II

### B. Watering:

Sprinkle ANTU lightly on the surface of water until it forms a thin film, or shake up and suspend in the water at a rate of 1 to 2% concentration (1.3 to 2.6 ounces of ANTU per gallon of water). Distribute in small shallow paper cups.

### C. Dusting:

Although the method is expensive, ANTU may be used as a "contact" poison. Due to its physical properties it adheres well to the feet and hairs of rats when the rats run through it and the rats die when they lick it off their feet or hair. The method is useful in killing the last survivors. It is used thus in two ways:

a) Blow the powdered ANTU (either 100% or 50% mixed intimately with flour) into the rat burrows and harbours with a standard dust pump or "Cyanogas" type duster until the floor of the burrow is well covered.

b) Dust 25% or 50% ANTU mixed with an inert carrier such as talc, flour, or pyrophyllite onto and over the floors, runways, near openings, shelves, pipes, and other areas where the rats will come into contact with the poison. Placing the mixture in shallow patches on the floor in the same locations will be more economical than a general dusting although perhaps not as complete.

Rat control is a community problem and should be recognized and treated as such. Preparations must be made carefully in advance to enlist cooperation, take the proper safeguards, and cover all eventualities. Treatment must be thorough, and whole areas or blocks should be treated as a unit. More than one type of bait and method should be used,—preferably all the methods. Remove other sources of food and drink from reach of the rats during the poisoning periods so as not to set up competi-

tion with the baits. An added advantage of ANTU as a rat poison is that breathing becomes difficult caused by the lung dropsy. The rats are thus driven outside, so they die in the open rather than in their nests.

### Precautions in use:

1. Do not eat or smoke while handling ANTU. Keep personal contact to a minimum. Wash hands thoroughly after mixing or distributing the poisoned bait.

2. Keep all mixing equipment labelled plainly, wash equipment thoroughly after use and do not employ them for any other purposes.

3. Do not expose bait where the contamination of foodstuffs is a possibility.

4. Confine all pets from the treated areas. Remove and destroy all bait before releasing pets.

5. Advise or post notices to all inhabitants of buildings or areas to be treated.

6. Do not dump excess poisoned bait or removed used bait into the garbage where there is a possibility that pigs will eat the garbage. Burn all bait after treatment.

7. Keep the supplies of poisoned bait securely enclosed and out of the reach of dogs.

NOTE:—ANTU has been used in a rat-control campaign over a three year period in Baltimore, Md., during which time more than 50 tons of poisoned baits were distributed in over 150,000 houses, yards, stores, and warehouses. The rat population was reduced better than 90% and in many individual sections by 100%. Blocks were treated as units by two to four men. Once the rats were completely eradicated, these blocks resisted reinfestation for two years and more.

### "1080":

**S**ODIUM FLUOROACETATE or sodium monofluoroacetate, generally known as compound "1080," is one of the most toxic materials known in pharmacology. Under some conditions it is twenty times as toxic as strychnine. It is highly poisonous to

all animals on which it has been tested and is considered extremely toxic to man. However, when properly used it is an effective rodenticide and is recommended for use as such under certain controlled conditions. It is not recommended for use by the general public and must be handled with extreme care (N.R.C. release on "Use of 1080," July, 1946).

"1080" was discovered in 1944 as the result of routine screening and bioassay tests run at various U. S. Fish and Wildlife Service Laboratories to find better and more potent rodenticides. Its high toxicity was soon amply confirmed. Out of over 2000 materials tested only 23 had LD<sub>50</sub> toxicity values of 5 mgm./kilo or less when given by stomach tube.

1080 is a white flaky or fluffy powder similar in appearance to flour, powdered sugar, or baking powder. Its physical properties and chemical reactions are standardized by a U. S. Army specification (OQMG #221, 1946). The compound is stable chemically and is not corrosive to metals. It decomposes at approximately 200° C. and should not be heated to above 100° C. (230° F.) in the preparation of baits. Although readily and completely soluble in water, it is insoluble in organic solvents such as kerosene, alcohol, and acetone and is also insoluble in animal and vegetable fats and oils. When dry, pure, powdered 1080 is exposed to air it rapidly takes up water from the atmosphere and becomes sticky, therefore making it difficult to dust at times.

\* Presented January 17, 1947, before the Subcommittee on Zoonosis, 12th Pan-American Sanitary Conference, Caracas, Venezuela.



# "FUMERAL" Instant Diffuser

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The favorable features of 1080 as a rodenticide are numerous: its high toxicity to all species of rodents, its excellent acceptance, the absence of objectionable taste and odor, its non-volatility, non-toxicity and non-irritation on the skin of handlers, and complete solubility in water (thereby facilitating its easy compounding). In addition, rodents do not develop any significant tolerance on ingestion of sublethal doses.

The disadvantages of 1080 as a rodenticide are: its high solubility in water which may result in the poison being washed out of baits by rain; the rapidity of absorption by the gastrointestinal tract may cause symptoms which warn the animal before it has ingested a lethal dose; the danger of contaminating water supplies; the lessened acceptance of 1080 treated baits when rodents have received sublethal doses; its extreme toxicity to dogs, cats, domestic animals, chickens and undoubtedly man (the ease of absorption of which causes difficulty in treating accidental poisoning); the complete lack of any specific therapy or antidote (treatment is entirely symptomatic and it is impossible to save an animal once ventricular fibrillation has set in).

**Toxicity:** Table I (See Part I, May issue) under the discussion of ANTU lists the median lethal doses of the most common rodenticides to wild Norway rats. In that table the figures for 1080 show it to be 31 times as toxic as ANTU, 20 times as toxic as strychnine, and 627 times as toxic as white arsenic.

Table II (See Part I, May issue) showed the comparative toxicity of ANTU to a variety of animals. Table

**TABLE III.**

Animal	LD <sub>50</sub> to 1080
dog	0.1 to 0.2
cat	0.35 to 0.5
pig	0.3
goat	0.7
horse	1.
roof rat ( <i>Rattus rattus</i> )	1.0 to 4.0
wild Norway rat ( <i>R. norvegicus</i> )	3.0 to 7.0
white laboratory rat	5.0 to 7.0
monkey ( <i>Rhesus</i> )	5.0 to 7.5
domestic chicken	10. to 30.
mourning dove ( <i>Zenaidura macroura</i> )	10.
English sparrow ( <i>Passer domesticus</i> )	2.

**TABLE IV.**

Poison	Concentration in bait	LD <sub>50</sub> *	Poison in bait mg./oz.	Lethal dose in terms of bait used in the field†
1080	1:268	5	105	3.3 oz.
Ti <sub>2</sub> SO <sub>4</sub>	1:65	20	436	3.2 oz.
Zn <sub>3</sub> P <sub>2</sub>	1:50	40	567	4.9 oz.
BaCO <sub>3</sub>	1:5	800	5670	10. oz.
As <sub>2</sub> O <sub>3</sub>	1:33	1.5-15	860	0.12-1.22 oz.
Strychnine	1:320	1	88	
ANTU	1:20	4000	1425	197. oz.

\* In mgm./kilo. Figures estimated from data on monkeys.

† Figures based on a man weighing 70 kilograms (154 pounds).

III, below, shows the comparative toxicity of 1080, expressed as LD<sub>50</sub>'s in milligrams of poison/kilo of body weight for various animals.

It will be noted that the figures quoted for the wild Norway rat (from OQMG #221) differ greatly from that given by Diecke and Richter (1946),—being 15 to 35 time less. Wide variations in experimental conditions, rat strain, etc. account for this. Other data from the U. S. Fish and Wild Life Service give 1 milligram per kilo as the toxic dose. In any event, a fraction of a milligram is sufficient to kill a Norway rat. However, it should be noted that according to standards based upon ANTU, 1080 is extremely toxic to all these animals and does not show nearly the specific variation encountered with that other drug.

Since 0.5 oz. bait containing 1080 in a 1:456 concentration contains 31 milligrams of 1080, a small fraction of this bait (1/16th of an ounce) is sufficient to kill a large dog. The ingestion of sublethal doses shows no cumulative effects. Ormsbee (1945) presents another table of interest showing the comparative toxicities to man of the seven major rodenticides (Table IV):

Table IV shows that in reality 1080 is no more toxic to handle in the field than most of the other poisons used. Spencer H. J. (1945) showed that the susceptibility of rats to 1080 decreases with age by at least 30%. This is the opposite of conditions with ANTU where susceptibility increases with age.

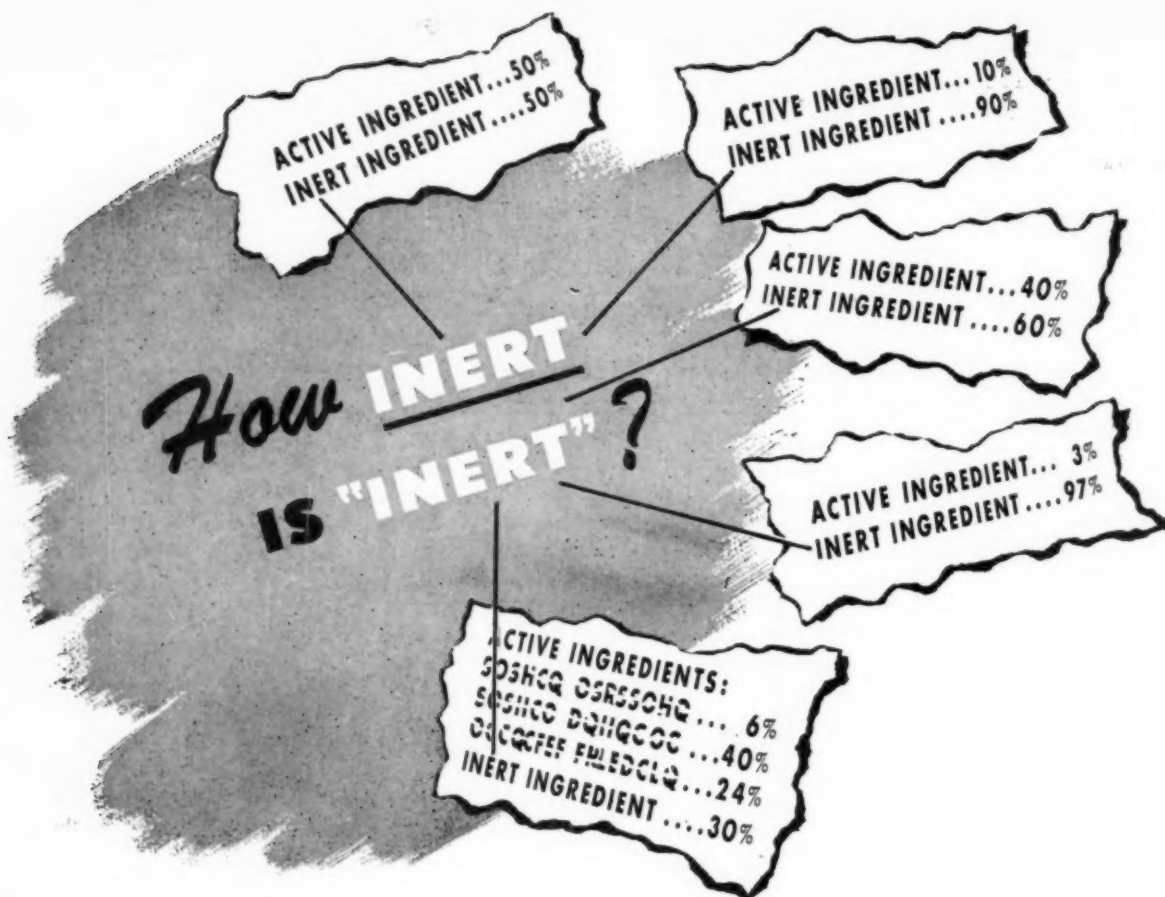
In any event, on the basis of laboratory and field tests (Spencer, D. A. 1945) 1080 has so proven itself, especially in the control of field rodents, that it has won a firm place in control programs. It is the best ap-

proach to date of an all purpose rodenticide.

The hazard of secondary poisoning is always present when using 1080. That is, the dead rodents with minute quantities of the stable and unchanged 1080 in their tissues are lethal to dogs, cats, and pigs when their carcasses are consumed by these animals.

**Pharmacologic action:** Sodium fluoracetate (1080) exerts its action mainly on the myocardium and the central nervous system. Death is so rapid (1 to 6 or 8 hours) that there is not much chance for the more chronic histological pathologies to set in. The effect on the heart is the primary cause of death. First there is a *pulsus alternans* (alternation of heart sounds both in force and rate), then premature systoles, and death results from ventricular fibrillation. Central nervous system reaction is manifested by epileptiform convulsions. In horses (Frick and Boebel, *Vet. Med.* 41: (6): June, 1946, pp. 196-197), in addition to the haemodynamic changes, there is profuse sweating, the mucous membranes become pale and later markedly congested (bright brick red in color), and the body temperature drops sharply. Marked depression, rapid respiration, grinding of teeth, and a heart beat rate that is so irregular that it does not permit heart beat counts to be made marked the period before death. Changes in the blood,—black, thick, and tar-like, were also notable.

**METHODS OF USE:** Many of the suggestions about the control of rodents, baiting procedures, campaigns, etc. detailed under ANTU are likewise applicable to 1080. However, since 1080 is so much more toxic



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through processing and dusting equipment. This means less down-time for maker and user.

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**DUSTABILITY**—Excellent characteristics as regards dispersion, even coverage, tenacity. This means cheaper pest control.

**WETTABILITY**—Attaclay has inherent wetting action on "hard-to-wet" toxicants. This means formulation savings.

**SUSPENDABILITY**—Within the required range. Readily modified to meet specific formula needs. This means better performance.

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to man and other animals, more stringent precautions must be set up. It must always be kept in mind that "no single rodent species may be segregated for control away from the mammal and bird association of which it is an integral part." (Spencer, 1945).

In the control of sylvatic plague, tularaemia, tick borne relapsing and some of the spotted fevers, where the attack is made on a variety of wild rodents, the biologies of the rodents vary widely from area to area. It is necessary to know exactly their habits, food preferences, and ecological relationships before successful and safe use can be made of the new rodenticide. Thus the control programs must be set up and directed in conjunction with the wild-life biologist or ecologist.

The high solubility of 1080 in water and its absence of odor and taste permit its easy formulation in the preparation of baits and water solutions. As an aid in the control over the distributed poison baits, it is suggested that permanent bait stations be established.

#### A. Baiting:

One ounce of 1080 per 25 or 28 pounds of food bait is the recommended concentration (1:400) for rats and 2 ounces of 1080 per 100 pounds of grain (1:800) for field rodents. The solid food baits may be kept in cold storage, as 1080 does not deteriorate when mixed with baits, although the ingredients of the baits themselves may spoil.

The U. S. Fish and Wildlife Service has designed the following formulae as typical poisoned baits:

1. dried bread crumbs..... 24 lbs.  
ground, fresh pork fat..... 6 lbs.  
cod liver oil..... 1 pt.  
1080 ..... 1 oz.

Suspend the 1080 in the cod liver oil and mix the crumbs and fat. Stir the 1080-oil suspension into the rest of the bait.

This formula is particularly recommended for Norway rat control:

2. fresh beef hamburger..... 15 lbs.  
beef crumbs or rolled  
breakfast oats ..... 15 lbs.  
1080 ..... 1 oz.  
water ..... 1 pt.

Dissolve the 1080 in the water, blend the meat and the cereal. Sprinkle the poison solution over the bait while stirring.

This formula is also recommended for the Norway rat.

3. pecan nut crumbs..... 30 lbs.  
1080 ..... 1 oz.  
mineral oil or soybean oil... 1 pt.  
Suspend the 1080 in the oil and sprinkle over, mixing with the crumbs.

This formula and No. 4 (below) are particularly adapted to the black Alexandrine, or roof rats (*Rattus rattus* subspecies).

4. cubed, raw sweet potato... 30 lbs.  
1080 ..... 1 oz.  
wheat flour ..... 9 ozs.

Blend the 1080 and the flour. Cut the raw sweet potato into sections  $\frac{1}{2} \times \frac{1}{2} \times 1$  inch. Dust the flour-poison mixture over the cubed vegetable, with continuous stirring. Generally, thorough mixing of the bait is aided by first dissolving the 1080 in small amount of water or by blending it with five times its own weight of wheat flour. Place the baits at 10 to 12 foot intervals along runways, in concealed positions behind boxes and boards, etc., or in special bait stations. Use a teaspoon to deposit the poisoned bait, making 60 to 80 piles per pound of bait.

#### B. Watering:

One-half ounce of 1080 per gallon of water (1 oz./2 gals. = 1:268) is the recommended concentration against all four species of urban and building visiting rats as well as the house mouse. Stock solutions may be stored indefinitely.

Shallow, squat-type,  $\frac{3}{4}$  ounce waxed paper souffle cups should be used to hold the poisoned water. One half ounce of solution per cup is sufficient. The cups should be placed at 10 to 12 foot intervals along runways, in concealed positions behind boxes and boards, or in specially constructed bait stations.

Macchiavello (1946) in his highly successful campaign in Tumbes, Peru used more dilute water solutions but more concentrated baits against the Alexandrine rat, as follows:

- a) 1:1000 solution in water.
- b) 5 parts/1000 (1:200) mixed with rolled oats.
- c) 5 parts/1000 (1:200) in special cakes (toasted whole wheat, evaporated milk, parmesian cheese, lard and salt).

He placed the baits, intermingled at random, on floors; in rat burrows; ceilings, rafters, attics; between double walls, beneath floors, and outside in pit privies. He obtained kills ranging from 3 rats per 100 poisoned baits to 40 rats per 100 poisoned baits (incomplete checks). The cost of the poisoned bait per dose was \$0.02 (U.S.) each but only \$76 (U.S.) to treat the whole town of about 10,000 population since not more than 5 baits were used in or around any one house.

Precautions in Use: (modified from N.R.C. Recommendations).

1. 1080 is to be used only by qualified and responsible persons such as federal, state, or municipal health officers and experienced professional pest control operators. It is not to be used by the general public. It is always to be used with extreme care.

2. Add a coloring agent (National Brilliant yellow S.P. Available from National Aniline Division of the Allied Chemical and Dye Corp., New York) to identify the material and guard against its being mistaken for flour or baking powder.

3. Store 1080 in properly labelled containers kept constantly under lock

and key. All stock supplies, equipment, and poisoned baits should be kept out of the reach of irresponsible persons, children, pets, and livestock.

4. Use a dust respirator when handling the pure dry chemical as the dust may be inhaled.

5. After working with 1080, brush exposed clothing carefully in the open away from animals, pets, food, or other people to remove the accumulated 1080 dust.

6. Handle carefully at all times. Wear protective gloves if hands are cut or bruised.

7. Do not smoke or eat while working with 1080. Keep the hands away from the mouth.

8. After handling, mixing, or distributing 1080 poisoned baits, wash the hands thoroughly and discard the wash water by pouring on the ground in a porous innocuous place.

9. All weighing, measuring, and mixing equipment, stock bottles, bait containers, and other accessories involved should be properly labelled, washed immediately after use, and reserved for 1080 only. The equipment and stocks should be kept locked up when not in use.

10. Use 1080 only in commercial and business establishments, on guarded garbage dumps, or in the open fields removed from human habitations. It is not for use in residential areas or for distribution in places where the public might be exposed to it, where it can contaminate food or water supplies, or where the distributed baits are not always under close control and check.

11. All pets should be removed from the area to be poisoned and kept out until the entire program has been completed. They should not be permitted to eat or play with poisoned rodents or dried carcasses.

12. Rats can carry partially eaten baits, upset water cups, and track over stacks of food materials with poison-soiled feet, so keep the poisoned stocks and distributed baits away from possible contamination of food and water.

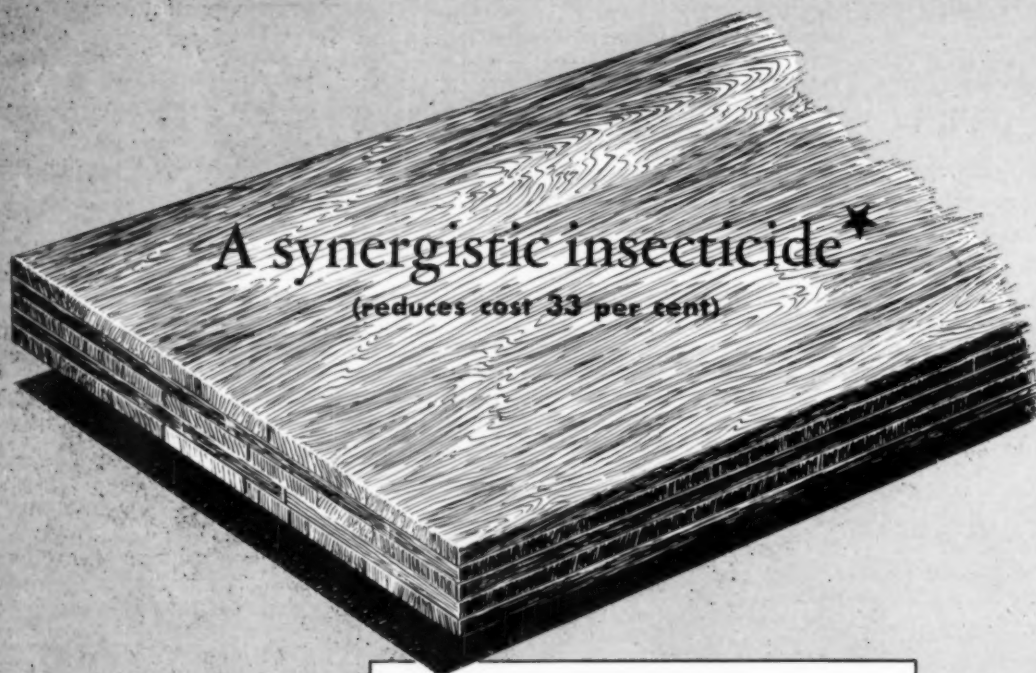
13. The bodies of all poisoned rats and other rodents should be recovered and destroyed by burning. Burn also any old dried carcasses found. This procedure is necessary to prevent secondary poisoning of cats and dogs and for good sanitation.

14. Keep a complete written and dated record of all the 1080 received and dispensed, where placed, amount of bait used, persons handling the material, etc.

15. All uneaten food and water baits should be collected at the end of the poisoning operations and burned. They should be handled with proper equipment since the poison is still present and is as potent as when first exposed.

16. Do not use greater amounts of 1080 than those specified since this increases the secondary poisoning hazards to other animals.

17. Supplies of 1080 poisoned water should be stored and carried only in durable, shatter-proof receptacles and should be dispensed carefully by syringe to avoid spilling.



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18. Do not place cups of poisoned water or bait on boxes, ledges, pipes or other unstable mounts, or on stored merchandise, grain sacks, vegetable counters, etc., where they may be upset.

19. Always be prepared with first aid equipment and a full understanding of the procedures to be followed in case of accidental poisoning.

### Treatment of Accidental 1080 Poisoning

There is no specific treatment or antidote, treatment is purely symptomatic

#### A. First Aid:

1. Keep the patient as quiet as possible.
2. Induce vomiting by sticking a finger down the throat or use of an emetic (1 tablespoon of powdered mustard in a glass of warm water, etc.).
3. Follow with a dose of magnesium sulfate (Epsom salts) or other cathartic as a purge.
4. Call a physician immediately.

#### B. Medical Treatment:

- a. Central nervous system reaction (epileptiform convulsions).
  1. Control any central nervous system excitation by the judicious use of barbiturates of medium duration of action,—e.g., sodium amytal. Use intravenous administration if necessary.
- b. Cardiac reactions. (Pulsus alternans, ventricular fibrillation).
  2. give sedative to allay apprehension.
  3. complete rest.
  4. intracardiac injection of 5cc. of 1% procaine hydrochloride after onset of fibrillation.

#### C. Convalescent Period:

1. symptoms usually subside in 12 to 24 hours.
2. maintain complete bed rest for three or four days.

### Prophylaxis for Field Workers

**I**N addition to vaccines, field workers and laborers doing surveys, control or eradication programs have two additional weapons to protect themselves from contact with the vectors of the diseases: the use of DDT to impregnate their clothing and the use of insect repellents.

The long-time residual action of DDT may be made use of in impregnating the outer and inner garments and the bedding materials of field workers. The DDT is applied at a rate of 2% of the dry weight or 15 grams of DDT per garment through spraying or dipping with 2% DDT dissolved in a volatile solvent (e.g. gasoline or Stoddard's solvent) or an aqueous emulsion (correctly diluted

xylol-Triton X-155-DDT formula) or through dusting the clothing and bedding with 10% DDT powders. These procedures, followed according to directions available for similar control of body lice, are intended to kill fleas which enter and attempt to hide in the folds of the clothing. The impregnation methods may be expected to remain effective for 1 to 2 months, while the dusting methods give protection for 2 to 3 weeks.

Any one or a combination of the approved and officially adopted insect repellents used by the U. S. Armed Forces may be used effectively to prevent the bites of fleas. These materials are: dimethyl phthalate, indalone (alpha dimethyl-alpha' carbutoxydihydro-gamma-pyrone), Rutgers 612 (2-ethyl-1,3 hexanediol) and dimethyl carbate (cis-bicyclo (2,2,1) -5-heptene-2,3-dicarboxylic acid, dimethyl ester). When sprayed or patted onto the pant legs and socks of field workers at the rate of about 2 ounces per garment, they prevent attachment and bites of fleas and retain their effectiveness for one week to ten days. When applied to the skin, materials afford protection for 3 to 4 hours. With both of these technics it is well to make the applications *before* the workers enter the area. The residual effects are of sufficient duration that treatment several days previously will not materially affect the degree of protection afforded.

### Summary

**T**HE developmental background and practical data are presented on recommended programs for the field control of plague and murine typhus, using a combination of vector control with the insecticide DDT and rodent control with the rodenticides ANTU and "1080."

Both programs should be carried out simultaneously, with the application of the DDT to kill the fleas applied before the poison baits are set out to kill the rats. This prevents migration of the fleas from the dead rats to seek blood meals from human hosts.

2, 5, or 10% DDT is dusted around the floors, furniture, objects,

and clothing in houses; in rat runways, harbourages, nests, holes in foundations of buildings, space between walls, roofs; around sacks, bales, packing crates, in warehouses; and along the runways and nests of field rodents. The pulicide kills the free adult fleas off their hosts and flea larvae in these locations; enough material collects on the coats of the rats as they run through these areas to kill the fleas on them; and finally, through licking and cleaning their own coats the rats frequently pick up lethal doses of DDT and succumb.

ANTU, prepared in a 1 to 2% concentration in a variety of bait formulae, sprinkled over cut surfaces of food, or floated on water is used as the rodenticide of choice where the Norway or brown rat, *Rattus norvegicus*, is involved and where there is danger of poisoning children or other animals. "1080," a far more powerful poison, in fact one of the most toxic materials known, is to be used only by skilled trained personnel under specialized conditions, where the rodents involved are not Norway rats, and where there is little danger of doing accessory damage.

Impregnating of clothing of field personnel with DDT and spraying of the socks and pant legs with the adopted insect repellents are accessory procedures recommended to kill fleas hiding in the clothing and to prevent flea bites amongst individuals in intimate contact with these vector insects. This is particularly recommended for field personnel engaged in control programs.

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- .....: (1946) "Instructions for using compound 1080 (sodium fluoracetate) as a rodent poison." N.R.C. Chemical-Biological Coordination Center, Washington, D. C. July, 1946, 6 pp.
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(Turn to Page 193)



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## DDT for Roach Control

On the basis of a single application, a 10 per cent DDT powder or a 5 per cent solution in refined kerosene was at least as effective as other insecticides, including sodium fluoride and pyrethrum, in roach control. When the DDT powder was applied periodically, it was superior to other materials. When the 5 per cent DDT solution was used periodically in damp or moist areas, it was superior to sodium fluoride or pyrethrum for the control of both German and American roaches. L. S. Henderson. U. S. Dept. Agr., Bur. Entomol. Plant Quarantine E-701, 8 pp. (1946).

## Benzene Hex Odor

Apparently not all benzene hexachloride insecticides marketed in Britain suffer from the bad odor that has characterized most American formulations. J. M. Vallance writes from Britain: "I have before me a couple of cans of benzene hexachloride dusts, as marketed by Britain's Imperial Chemical Industries Ltd., and also a can of their companion liquid spray. While raw hexachloride has a most persistent and offensive odor, these three preparations are indeed fully as acceptable from the odor angle alone as are the vast majority of sprays sold today. One of the samples to which I refer is 'Gammexane -D 929,' a crude dust containing 13 per cent of the gamma isomer of benzene hexachloride. It has a somewhat musty earthy odor, but is by no means offensive or revolting. The finer powder, 'D-034,' has

very little odor of any kind. The spray, 'L-044,' is correctly described by I.C.I. in their literature as 'practically free from residual odor'."

Mr. Vallance further reports that he is informed that benzene hexachloride sprays available in France are quite effectively perfumed and can be odor-masked by special perfuming compounds. In this latter respect, terpineol and other turpentine derivatives can be used for their refreshing effect, especially if superimposed on a mossy or balsamic type of base, and brightened up with bornyl or benzyl acetates.

## Low Pressure Aerosols

Aerosols have already captured a fairly large portion of the insecticidal spray market even though present formulations require the use of high cost containers. The anticipated advent of new low pressure aerosols, which would permit cheaper packaging, could make possible a tremendous increase in total aerosol sales. There appears to be a market for from 7 to 10 million of the high pressure units, and with a low pressure container selling at perhaps half the price, the total market might increase in the course of the next few seasons to 25 or 50 million units (12 ounces by weight per unit).

The type of valve and color of the container are the principal differences between the wartime aerosol bomb and the unit currently on the civilian market. For civilian consumption, it appears more practical to use a non-refillable container which does not require the heavy gauge metal specified by the Government specifica-

tion ICC-9. The new spec., ICC-40, was drawn up to meet such requirements. The valves now in use are operated either by a screw or a push button. Attempts to provide an easily operated valve have led to considerable trouble with leakage and other operative difficulties. Not enough time has been spent yet on experimentation and development.

As many as 60 hand operations are required before the packaged aerosol product is ready to be shipped. The cost of the container to the consumer is approximately equal to the cost of the insecticide contained in it. Military formulas, some still in use, have shortcomings such as unpleasant odor and paint removing properties of some of the solvents. Also they were developed principally to control flying insects. The propellant ("Freon-12") exerts a vapor pressure of approximately 85 psi at room temperature and needs a substantial container.

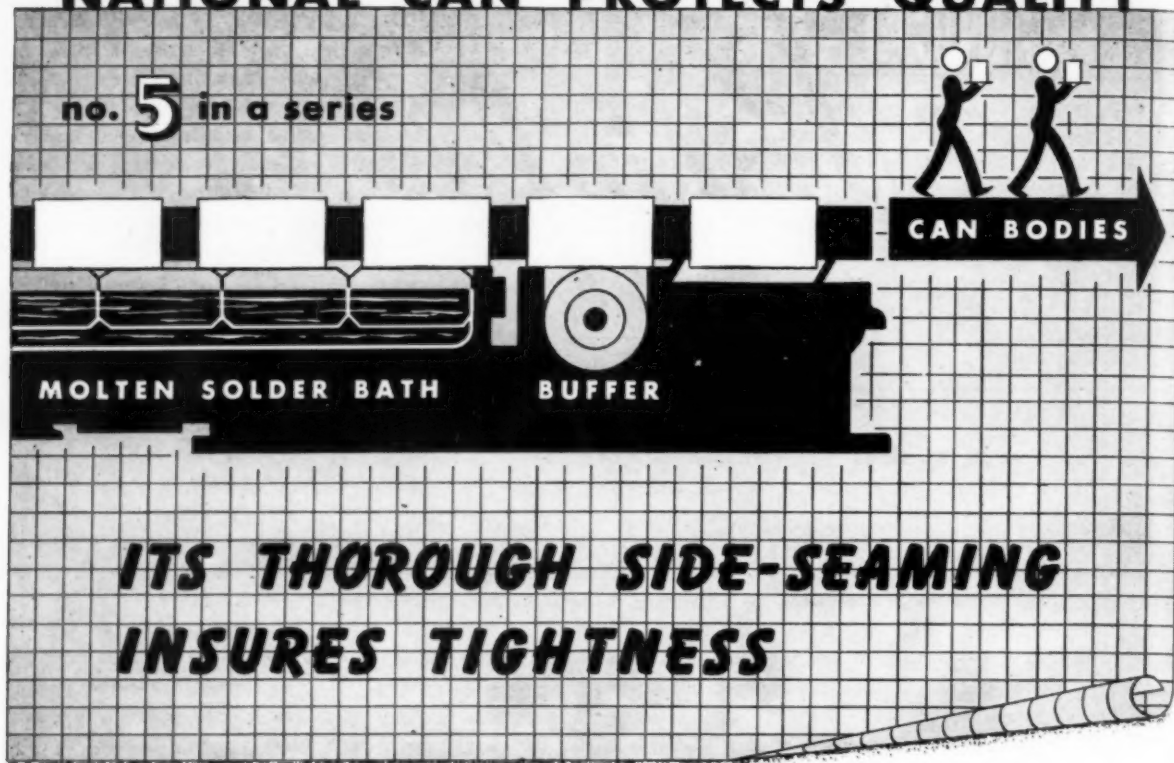
At a lower pressure, the necessity for a strong container becomes less and at a pressure below 25 psi at 70° F. a specified ICC container is no longer required.

A specification for a light container to hold up to 40 psi at 70° F. is now being considered. At low pressures, the use of a glass container has some possibilities. Coated bottles are a distinct possibility. One large food concern has worked out a novel package which employs a 3½ oz. cartridge in an outside container with a trigger valve. The cartridge can be replaced by another after it is exhausted.

The principal requirements in formulating a low pressure aerosol solution are choice of propellant and low non-volatile content. It is necessary, of course, to use highly concentrated insecticides so as not to increase the non-volatile content of the aerosol beyond the effective limit. In a low pressure aerosol, this limit is close to 10 per cent. Another desirable requirement is a slow increase in vapor pressure with temperature increase.

For the new low pressure units, containers may soon be available fully lithographed and ready to fill. This would eliminate most of the previously required operations, lower the cost of

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the item, and lead to more competition since considerably less investment would be required. "Aerosols Shoot for Mass Market," L. D. Goodhue, F. S. Schultz & Paul Wilkins, Aerosol Inc., Neodesha, Kan. in *Chemical Industries*, April, 1947, Page 602.

### Toxicity of HETP

Information on the toxicity of hexaethyl tetraphosphate was recently released by S. A. Rohwer, chairman of the Interdepartmental Committee on Pest Control, Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, USDA. The report, a compilation of comments by several scientists in various governmental departments offers a precautionary statement on the toxicity and potential danger of the compound. It points out that HETP is an exceptionally toxic material especially with regard to its

absorption through the skin. The minimum lethal dose of hexaphos by oral ingestion is as low as 5 milligrams per kilo in some species of animals. The compound is readily absorbed by the intact skin. The preliminary findings demand that human beings not be exposed to the compound either by ingestion, skin contact, or inhalation. Symptoms complained of by human beings exposed to hexaphos in spraying operations are a marked shortness of breath with a sense of constriction in the chest. The report recommends that workers avoid contacting, inhaling, or contaminating food with HETP. At the end of a spraying operation clothing should be removed and the body should be bathed with warm water and soap. A dye should be added to HETP in such a concentration that it will be readily detectable in the final insecticide solution.



## USDA Recommendations on DDT Use

**I**NFORMATION on the uses of various DDT formulations for the control of insects affecting animals was distributed late in March by the Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, USDA. Five types of DDT formulations are employed in the control of animal pests—dusts, wettable powders, emulsions, oil solutions, and aerosols. Technical DDT having a setting point of 89° C. is generally used for all formulations, except for certain types of aerosol preparations. For liquefied-gas aerosols, a product having a melting point not less than 103° C. is used.

Most of the experimental work with DDT dusts was done with mixtures containing pyrophyllite or non-fibrous talc. Materials to be avoided are those that are too fluffy or are liable to pack in the duster. Dusts are recommended in concentrations up to 10 per cent for use on animals (except cats) infested with certain lice and fleas. Dusts are considered especially desirable for louse control on cattle and hogs in cold climates. Where dusts can be employed effectively and safely, their use is encouraged.

Wettable powders consist of finely ground DDT plus an inert carrier or diluent such as pyrophyllite or non-fibrous talc to which a wetting agent is added.

DDT emulsion concentrates contain DDT, an organic solvent, and a water-miscible emulsifier. The concentrate is diluted with water to obtain the desired strength of DDT for application as a residual-type surface spray or for use on animals as a spray or dip. Many solvents used in making such emulsions are of such a nature that they should not be applied directly to animals. It is recommended that high-boiling aromatic solvents be avoided.

Unstable emulsions are liable to occur with hard or highly alkaline waters. The heavier-than-water type of solvents are better for dips and the lighter-than-water types are more advantageous for spray-use. The total amount of spray applied to an animal should be considered. Too much emphasis has been given to concentration of DDT in the spray without due consideration to the amount of liquid and the actual amount of DDT applied. In most cases, the preferred treatment for pest control on livestock is the use of

DDT wettable powders. For use as sprays by the average farmer or small livestock raiser, emulsions may offer certain advantages over wettable powders. They may also be more suitable than a wettable powder for use in the home to control household pests.

The most desirable emulsion from the standpoint of safety is one in which the oil phase remains as a milky suspension for more than 24 hours. Wettable powders and emulsions of the heavier-than-water type may be used for several months in dipping vats.

An emulsion of 1 per cent DDT in the final dilution has also been recommended for the control of lice and crab lice on man.

For residual sprays and space applications, kerosene is recommended as a base for DDT when it is used around the home and barn without direct application to animals. As an additive to quick killing animal sprays of pyrethrum or certain thiocyanate compounds, DDT in concentrations up to 0.5 per cent is recommended.

When such a spray with 0.5 per cent DDT is used on livestock, it should be employed as a mist spray rather than wetting the skin of the animal.

Aerosol sprays are not considered an economical or effective means of applying residual deposits of DDT. Tests with DDT containing aerosols have suggested that they may reduce the numbers of flies in barns or similar locations but the effect is usually temporary. Certain of the fog generator types of machines can be adjusted to produce a rather wide range of particle sizes and under certain conditions are reported to deposit sufficient DDT to give a considerable lasting effect.

### Pyrethrin in Oil Tested

The Martin-Brightwell modification of the Wilcoxon-Holaday mercury reduction method for the evaluation of pyrethrum preparations in mineral oil, containing six per cent of total pyrethrins, has been modified to give accurate results for dilute preparations containing less than 0.2 per cent of total pyrethrins. G. T. Bray and K. A. Lord. *J. Soc. Chem. Ind.* 65, 382-4 (1946).

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### Synthetic Wax Polish

Compounds of ethylene with a saturated organic compound containing only carbon, hydrogen, and oxygen, such as an alcohol, aldehyde, ketone, acid, ester, etc. are synthetic waxes adequate for incorporation in wax polish compositions. Such compounds have been named telomers. The Telomerization reaction is preferably conducted at temperatures between 50 and 300°C. under pressure, and is catalyzed by suitable catalysts such as benzoyl peroxide, diethyl peroxide, etc. B. W. Hawk, J. R. Roland, and H. H. Hoehn, to E. I. du Pont de Nemours & Co. U. S. Patent No. 2,409,683.

### Disinfecting Composition

1-Hydroxy-4-chloro-5,6,7,8-tetrahydronaphthalene or its 2-alkyl or 2-halogen substitution products are excellent preservatives and disinfectants, being superior to phenol. At 15°C., a 0.02 per cent solution kills completely a deposit of *Bact. coli commun.* or of *Staphylococcus aureus* within 2.5 minutes. The compound is soluble in dilute alkalis, aqueous soap solutions, and sulfated fatty alcohols. W. Henrich and W. Kaiser, vested in the Alien Property Custodian. U. S. Patent No. 2,410,497.

### Insecticidal Mists

In mists having particles of 10 millimicrons diameter or smaller, the flight movements of insects are largely responsible for collisions with the droplets; increased flight activity leads to the accumulation of more spray droplets on the insects and consequently a higher mortality. Under these conditions, strongly irritating insecticides like the pyrethrins are superior to DDT, which does not have this effect.

For practical applications where the sprays depend on mist action for their effect, pyrethrum should be mixed with DDT so that the maximum dose of the latter can be accumulated. Males of the mosquito *Aedes aegypti* are innately more susceptible to pyrethrins and DDT than females. Resistance decreases pro-

gressively with age. W. A. L. David and P. Bracey. *Bull. Entomol. Research* 37, 177-90 (1946).

### Rat Poison

Krysid or  $\alpha$ -naphthyl thiourea (antu) was found poisonous for rats and mice in doses of 3.5 and 0.5-1.0 milligram, respectively, which amounts to a lethal dose of 25-30 mg./kg. of body weight. For rabbits, guinea pigs, chicks, pigs, dogs, and cats, respectively, the lethal doses were in mg./kg. body weight: 300-400, 300-400, 500-750, 130, 150, 100. The compound is a lung poison. It probably is not harmless to man, but should be handled with proper precautions. V. I. Washkov. *Gigiena i Sanit. (U.S.S.R.)* 11, No. 1-2, 47-9 (1946).

### Structure and Toxicity

Of the several ways of studying the relationships between molecular structure and toxicity of insecticides, the analytical methods, when effects of modification and dissection of the molecule are followed, is applicable to insecticides of insignificant vapor pressure at ordinary temperatures. The effect of modification of the molecular structure of nicotine, rotenone, and of pyrethrin synergists allied to sesamin in terms of their insecticidal properties is discussed.

The importance of physical properties affecting the distribution of the insecticide between the biophase in which it acts and the phase in which it is applied is illustrated by the case of the aliphatic thiocyanates. The reasons why DDT is insecticidal are discussed. H. Martin. *J. Soc. Chem. Ind.* 65, 402-5 (1946).

### Pyrethrin Solution Dewaxed

Propellent solutions containing about 93 per cent of Freon along with 1 per cent of pyrethrins, 2 per cent of sesame oil, and 4 per cent of kerosene, are improved by chilling to between -10 and -30°C. until wax precipitation has ceased, and filtering. J. D. Park and W. W. Rhodes, to Kinetic Chemicals, Inc. U. S. Patent No. 2,410,101.

### Insecticide Spray Base

Isoparaffinic oils prepared from the heavy alkylate bottom fraction from distillation of the alkylated product of a commercial alkylation plant are suitable spray-base oils for insecticides and fungicides. The alkylation process treated an olefin, such as butene or pentene, with an isoparaffin such as isobutane. The bottom fraction is treated by suitable procedures. Other toxicants such as pyrethrum or rotenone, may be added. W. E. Bradley, to Union Oil Co. of California. U. S. Patent No. 2,405,775.

### Repellency Tests

Spraying rooms with 0.1 per cent of pyrethrum in kerosene at 25 cc. per 1000 cubic feet prevented 90 per cent of *Anopheles minimus* from entering the following night. The repellent effect persisted at least 4 days. Somewhat larger quantities of pyrethrum in Freon aerosols produced a similar but less marked repellent effect. "Lethane 384" (50 per cent butyl carbitol thiocyanate in paraffin) in kerosene gave much less marked repellence, which was not discernible on the second night. Different mosquito species varied greatly in sensitivity to the repellents. Two types of repellent effects were noticed: repellent action proper, to which the male mosquitoes were more sensitive than the females, and the masking effect of the spray ingredients on the human scents attractive to the mosquitoes. C. R. Ribbands. *Bull. Entomol. Research* 37, 163-72 (1946).

### Zephiran Incompatibility

"Zephiran," one of the better known quaternary ammonium compounds high in germicidal power, is a mixture of high-molecular alkyl dimethyl benzene ammonium chlorides. An aqueous solution of "Zephiran" 1:3000 has been found to be incompatible with soluble nitrates. This is probably due to the formation of a mixture of high-molecular alkyl dimethyl benzene ammonium nitrates which are only slightly soluble in water. C. L. Huyck and E. D. Davy. *J. Am. Pharm. Assoc.* 8, 27 (1947).



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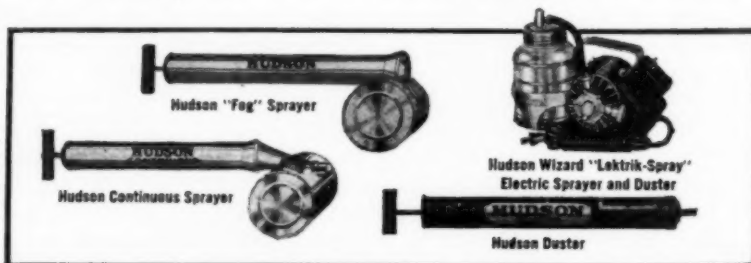
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24TH ANNUAL CONVENTION BANQUET  
NATIONAL SANITARY SUPPLY ASSOCIATION  
MIDWINTER HOTEL, CHICAGO - APRIL 24, 1947

## N.S.S.A. 24th Annual Convention

**T**HE impressions from the recent annual meeting of the National Sanitary Supply Association held last month in Chicago are pretty well summed up by the remark which a lady visitor at the exhibits was overheard to make. She said, "My, but it takes a lot of things to keep a building clean". To the uninitiated in this business, the number of pieces of cleaning apparatus, brushes, mops, dispensers, sprayers, soaps, disinfectants, waxes, insecticides, and many other items, appears exceptionally large. Fortunately, those engaged in the industry do not have to handle all these items but they do have to stock a great many. The industry is steadily growing in volume of business. There is no better criterion of this than the wares displayed at the recent N.S.S.A. meeting.

To anyone on the production end of the business, it was quite evident that the theme of the convention was almost entirely sales. The convention program had to do entirely with sales problems, with production problems receiving no attention at all. Perhaps the reason for this is that this industry, up to a few years ago, consisted principally of jobbers whose business it was to sell goods made by others. Now that more and more of these jobbers are manufacturing the products and apparatus which they sell, it would

As Viewed By

by Dr. E. G. Thomssen

be logical to give some consideration to production problems at future meetings. While it is true that the activities of the Sanitary Supply Association overlap those of the NAIDM and soaper's associations, firms in the sanitary supply field are also now selling many products peculiar to their own industry. It seems quite probable that even salesmanship in this industry could be improved by more intimate knowledge of the properties and characteristics of soaps, insecticides, waxes and disinfectants. Not all the smaller members of the N.S.S.A. belong to the larger associations, and the production men in these smaller companies would unquestionably profit by meeting other production men from their own industry.

In his first published statement, Jules Lovinger, Lovinger Disinfectant Co., Salt Lake City, recently elected president of the N.S.S.A., at its convention in Chicago in April, urged the members to make wider use of the official seal of the organization. He pointed out that, although new and better products are making the consumer more sanitation conscious, there is a need for the industry to be more concerned with value to the consumer, competition, quality, quantity, and price.

Among definite improvements in products of the industry noted at the recent meeting were the improved models of insecticide sprayers. For many years insecticide manufacturers and users have been calling for better sprayers so that their products might be applied more easily and more thoroughly. Users of industrial sprayers now have considerably improved models available to them judging from the new sprayers exhibited. Improved medium size sprayers are also now in production. Aerosol applicators are also now available, helping small users to attain more efficient insecticide dispersion. The three sprayers of this type which attracted the most attention at the Chicago show were the "Torpedo" aerosol spray gun, the "Commando" aerosol gun and the "Commander Hydro-Mist" vaporizer. The last was shown in two sizes, large and medium. All three show great improvement over old type sprayers. Steam is employed by the "Torpedo" and "Hydromist" makes, while the "Commando" converts the concentrated liquid insecticide into gas thru a heating element and expels a dry vapor that hangs in a room for a long time.

In the equipment field a number of new and improved devices for the application and use of sanitary products were noted. On display were better mops, greatly improved floor

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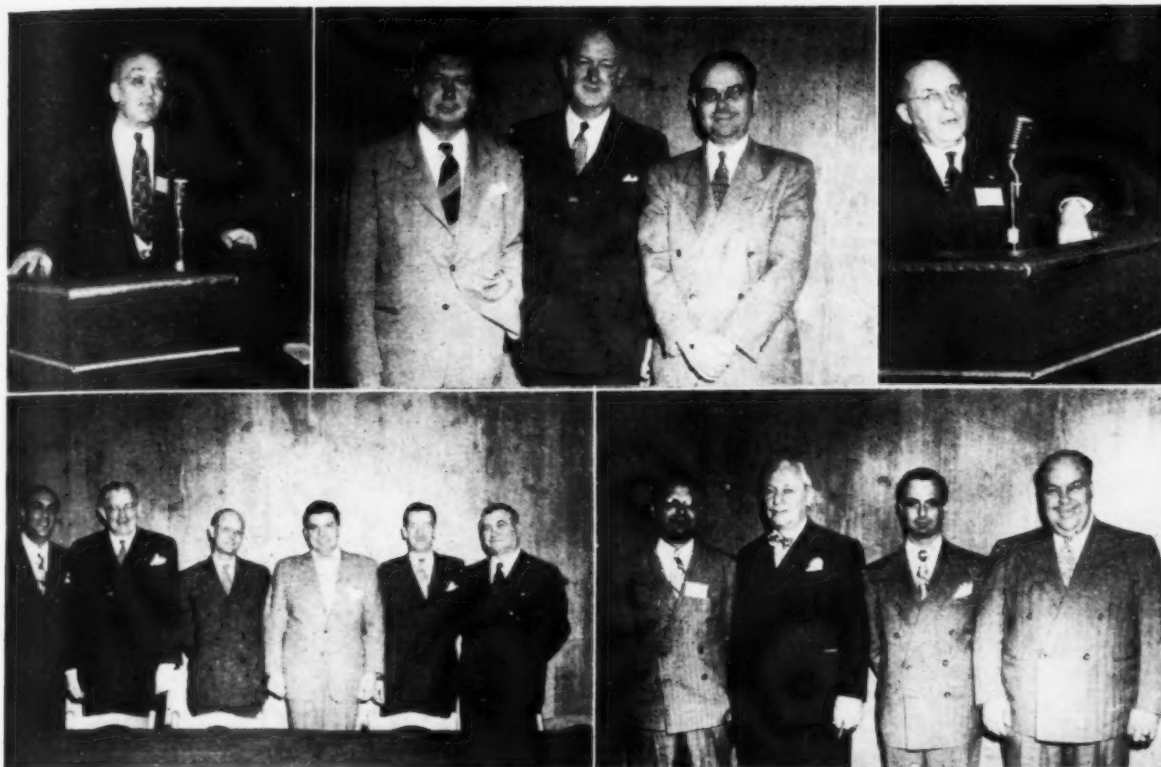
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washing machines, wall cleaners, up to date brushes, waste receptacles, and other items. These were all of interest, but the new soap dispensers are worthy of special mention. Greater attention than before is being given to important details. Thus we find such characteristics as durability, appearance, practicability and fool-proofness stressed in the newer dispensers. Bobrick, Moore and others showed their new lines which attracted many visitors to their displays.

Among those showing germicidal products were Baird & McGuire with their "No-Roma" quaternary ammonium salt compound and "Bactrol", their lilac scented spray in both red and black labels to indicate a phenol coefficient of 3 or 5; Fuld Brothers, who showed "Fuldicide", a cationic product, "Pig" and "Antifect," an athletes foot disinfectant; Winthrop Chemical Co. who distributed an interesting book re their cationic product "Roccal"; and T. F. Washburn Co., whose book on "Modern Sanitation" was appreciated because it covers not only disinfectants but insecticides and suggested labels for their line.

Above, left, J. L. Brenn of Huntington Laboratories; center, Jack Varley, Baird & McGuire, Leo J. Kelly, executive vice-president of the N.S.S.A., and the new president, Jules Lovinger, Lovinger Disinfectant Co.; right, Jay H. Zucker of State Chem. & Mfg. Co.

Below, left, Art Newfield, Bobrick Mfg. Co., Jim Longshore, Rex Cleanwall Corp., E. R. Moulder, Moulder-Oldham Co., Leo G. Peck, Peck's Products Co., Vice Pres. Carl B. Lien, Lien Chemical Co., Treasurer, and Martin J. Peters, Moore Bros. Co., Secretary to the Board of Directors.

Below, right, newly elected regional vice-presidents, Eastern Region—Jack Gantz, Empire Brush Co., Central Region—Mal Flanagan, Federal Varnish Co., Southern Region—Erwin Zohan, Zep Mfg. Co., and Western Region—Bill White, Wilwite Associates.

Products for floor treatment were much in evidence. T. F. Washburn Co. also had an attractive display of their many items for this field and distributed a 60th anniversary elaborate handy catalog on "Modern Floor Maintenance". Fuld Bros. showed their liquid wax. Oil-Dri Corporation issued bulletins regarding slipping floors and accident prevention through the use of "Oil-Dri." Candy and Co. had an excellent display of their liquid waxes. J. A. Schillinger exhibited "Jaxwax" for dance floors; Rex Cleanwall Corp. their new resurfacer for concrete floors and "Rex Glo X," non

slipping floor treatment. Davies Young included liquid waxes in their display as did Federal Paint & Varnish Co. in their booth.

Soaps and detergents were well represented among the exhibits. The Allen B. Wrisley Co. had a display of not only industrial soaps but also toilet soaps and toiletries. Kamen Soap Co. showed a line of soap beads, powders, hand soap, polishing soap and synthetic detergents. Hysan Products Company's wares were conspicuous from the pent house atop the Morrison Tower right down to the Terrace Room. They included not only Hysan soaps, waxes and disinfectants but "Lo-Sope", the new hybrid, half soap-half lotion, which attracted much attention.

Davies Young's display was very conspicuous among the soapers. They showed a complete line of liquid soap, scrub soap and other products which had close attention. The Tech Soap Co. showed their soaps and featured "Kar Suds" as well as the rest of their cleanser line. Haag Laboratories presented their liquid soaps and sanitary chemical products in a very attractive manner and showed their

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processing operations by use of a small movie projector. This drew a constant group of visitors to their booth. Their brochure was generously distributed and appreciated.

Peck's Products Co. were represented as both a soap and disinfectant supplier. Their soap line was investigated by interested jobbers and Peck's cigars enclosed in special wrappers were smoked by quite a number of jobbers. They called particular attention to "Keep", their new liquid cleanser which has several desirable properties in the detergent field. Chemical Mfg. & Distributing Co. showed their line of "Target" products, well described in their soap, detergent and sanitary chemical catalog. The "Target" line was one of the most complete shown. Baird and McGuire gave considerable prominence to "B-M Cleaner", a combination of soap, detergent and wetting agent that acts as an all purpose cleaner.

While these comments cover the products of many of the exhibitors, there were others shown which were equally worthwhile. The exhibits were open to invited guests and interested persons the opening day of the convention. On other days only members were admitted. This procedure was constructive in that it kept curiosity seekers away and permitted better sales concentration of suppliers upon interested jobbers. Then, too, the exhibition rooms were not over crowded. The exhibits in many cases were in charge of factory men who could give correct answers to searching questions. This aided materially in presenting the merits of the products properly. Those in the industry who could not attend this convention lost an opportunity to both see and hear about the products one knows mostly through advertising and salesmen. It is well worthwhile to actually be on the spot where so much goes on for a week at a convention of this kind. Next year's convention and display will undoubtedly be even a more successful one because of the great interest shown this year.

#### Columbia Can Moves

Columbia Can Company, manufacturer of cans and metal special-

ties, has recently moved to new and larger quarters at 315 Wyckoff Avenue, Brooklyn 27, N. Y. In addition to up-to-date manufacturing facilities, the new location provides a modernistic show room and offices.

### TGA PROCEEDINGS

(From Page 42)

the aid of specific examples. Evaluation of such a product takes place along several parallel lines, proceeding a step at a time. The synthesis and preliminary properties are followed by determination of pertinent compatibilities, solubilities, physical properties and a brief survey of potential usefulness in the cosmetic field. Assuming that the compound looks promising at this stage and that each subsequent step is successfully passed, the study proceeds to the development of a suitable production process and thence to physiological testing and trial in specific products. Samples are submitted for customer tests, followed by publication of technical literature on the product. Additionally, both new and established chemicals are utilized to solve specific customer problems and adapted to use in new types of consumer products that are introduced by the cosmetic chemist. As a result, new information and compounds based on a sound scheme of testing in the laboratory, are constantly made available as tools for the development of new cosmetic products and processes.

#### "FACTORS AFFECTING THE ZONE-OF-INHIBITION ANTISEPTIC TEST AS IT APPLIES TO TOILET-GOODS PREPARATIONS"

Arthur R. Cade, Ph.D.

Givaudan-Delawanna, Inc.

Although, from the standpoint of government regulatory purposes, the terms Antiseptic and Germicide are considered identical (based upon the insistence by the regulatory group that for a material to be labeled as an Antiseptic it must perform as a Germicide) nevertheless, scientifically, a distinction in meaning between these two terms is still definitely maintained. As a result of this there has come into rather wide use today the term Bacteriostatic (introduced by Churchman in 1912 to identify those compounds which prevented the growth of some organisms while permitting others to grow readily in their presence) to take the place of, and to cover the actions formerly ascribed to, Antiseptic substances. The term Antiseptic as now properly used (in the majority of cases) is intermediate in meaning between that for a Germicide and a Bacteriostatic substance (or germicidal action and bacteriostasis). In other words:

A Germicide is a substance which kills micro-organisms.

An Antiseptic is a substance which prevents the growth of micro-organisms.

A Bacteriostatic substance inhibits the growth.

Thus while a germicide actually must kill, and a bacteriostatic substance need only inhibit or stop the growth, an antiseptic prevents the

growth of microorganisms by either of the other two processes (i.e. may kill or just inhibit).

Methods for testing this antiseptic action, for the most part are based upon the zone of inhibition test as described in U.S.D.A. Circular 198 and known commonly as the F.D.A. Agar Plate Method. This method is not "Official" however, and so there is not established any definite zone size which can be considered as the minimum, or standard, which all acceptable substances must produce when subjected to a test by this procedure.

Many claim, that the efficiency of an antiseptic is in proportion to the zone size it produces, and therefore endeavor to compound their products so as to get the largest zone possible. Likewise, in some instances, compounds have been rejected for use because their zone producing properties have not been considered great enough, and in their place other materials used which produced larger zones.

It is the basic purpose of this paper to indicate by experimental evidence that such assumptions are not necessarily correct, and that in many cases anyway, if not all, the reverse is true. Beyond a certain minimum, the larger zones produced are likely to indicate a poorer, rather than a better, product from a practical application standpoint. The reason for this is that when the zone size is large, that indicates greater diffusion out of the material containing the antiseptic into the surrounding medium. In this manner the effective concentration of medication becomes reduced, and this reduction may be sufficient so as to make the preparation containing it ineffective at the point of application. If not entirely ineffective there, it may be so reduced in strength that the possibility of reinfection at the point of contact, or in the clear zone area, becomes greatly increased. Data are presented to show, on the other hand, that some compounds which produce only small zones of inhibition maintain their efficiency over a considerably longer period of time. This is because of the lesser decrease in concentration than that which the larger zones production brought about, and thus the area of application, and that adjoining it, remains in a truly antiseptic state for days instead of for hours, as is often the case with the former products.

Factors which affect the zone size, as produced by this test method, are also discussed, and the effect of these variables correlated to show how the same solution can produce a widely different number of zone sizes, depending upon the technique used, and thus showing another phase of the same problem:—namely, to indicate that effectiveness of an Antiseptic is not in proportion to zone size, nor even closely correlated with it.

Therefore, in the light of these data, and on the basis of the assumptions as presented, it is suggested that a "standard" be set up incorporating these facts so as to allow, for example, a 3 mm. zone as the minimum size to satisfy the antiseptic requirements; and (if it is desired to be more strict or conservative) to include the requirement that, on sub-transferring after 48-hour incubation to another seeded plate, a definite clear zone of over 1 mm. size shall be produced on this second sub-transfer plate.



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## TRADE MARKS GRANTED

(From Page 65)

by New Process Service Co., San Francisco, Oct. 8, 1945. Serial No. 489,603. Published Sept. 17, 1946. Class 6.

426,340. Shampoo. Filed by Cosmetic Arts Laboratories, Upper Montclair, N. J., Jan. 10, 1946. Serial No. 494,557. Published Oct. 8, 1946. Class 6.

426,342. Insecticide. Filed by William Peterman, Inc., Newark, N. J., Jan. 10, 1946. Serial No. 494,573. Published Oct. 8, 1946. Class 6.

426,357. Dental plate cleaner in powder form. Filed by Clark Cleveland, Inc., Binghamton, N. Y., Jan. 19, 1946. Serial No. 495,012. Published Oct. 8, 1946. Class 4.

426,358. Toilet soaps. Filed by Les Parfums de Dana, Inc., New York, Jan. 19, 1946. Serial No. 495,053. Published Oct. 8, 1946. Class 4.

426,360. Medicated soap in granular or powdered form. Filed by Formax Co., New Haven, Conn., Jan. 23, 1946. Serial No. 492,252. Published Sept. 17, 1946. Class 4.

426,362. Disinfectant and mildew and bacteria preventive to be applied to fabric, etc. Filed by La France Industries, Inc., Philadelphia, Jan. 24, 1946. Serial No. 495,497. Published Oct. 8, 1946. Class 6.

426,363. Detergents. Filed by Cojer Laboratories, Akron, O., Jan. 25, 1946. Serial No. 495,374. Published Oct. 9, 1946. Class 4.

426,370. Household cleanser. Filed by Colgate-Palmolive-Peet Co., Jersey City, N. J., Jan. 29, 1946. Serial No. 495,588. Published Oct. 8, 1946. Class 4.

426,371. Household cleanser. Filed by Colgate-Palmolive-Peet Co., Jersey City, N. J., Jan. 29, 1946. Serial No. 495,589. Published Oct. 8, 1946. Class 4.

426,390. Furniture polish and floor wax. Filed by Grand Union Co., New York, Feb. 16, 1946. Serial No. 496,689. Published Sept. 24, 1946. Class 16.

426,392. Compound for washing woolens. Filed by Duncan MacKensie Co., New York, Feb. 18, 1946.

Serial No. 496,849. Published Sept. 24, 1946. Class 4.

426,393. Household cleaner. Filed by Hood Chemical Co., New York, Feb. 19, 1946. Serial No. 496,911. Published Sept. 24, 1946. Class 4.

426,402. Floor wax. Filed by David E. Kennedy, Inc., Brooklyn, Feb. 26, 1946. Serial No. 497,251. Published Oct. 8, 1946. Class 16.

426,404. Germicide. Filed by Vitamins and Pharmaceuticals, Inc., Dover, Del., Feb. 26, 1936. Serial No. 497,278. Published Sept. 17, 1946. Class 6.

426,415. Insecticide. Filed by M. J. Bennett & Co., New York, Mar. 7, 1946. Serial No. 497,770. Published Sept. 10, 1946. Class 6.

426,437. Shampoos. Filed by Associated Products, Inc., Chicago, Mar. 19, 1946. Serial No. 498,484. Published Sept. 10, 1946. Class 6.

426,438. Shampoo. Filed by Associated Products, Inc., Chicago, Mar. 19, 1946. Serial No. 498,484. Published Sept. 10, 1946. Class 6.

426,441. Preparations for deodorizing the air. Filed by Airkem, Inc., New York, Mar. 20, 1946. Serial No. 498,573. Published Oct. 8, 1946. Class 6.

## INSECTICIDE FUTURE

(From Page 137)

material, pyrethrum. This resulted in the development of concentrated pyrethrum extract, free from the objectionable features of irritation and wax which could be dissolved within the propellant. The result of combined, coordinated effort was the gas-propelled insecticidal aerosol now well known and commonly referred to as the "aerosol bomb."

Problems associated with its development and perfection to meet immediate requirements for use are still with us. They occur and will continue to occur with the development of new toxicants and propellents. Perhaps few recognize all the research that went into the development of the aerosol bomb that was accepted and widely used by the armed forces. The invention and perfection of the method was only the first step. Before it could

be accepted and adopted it was necessary to determine whether it was safe to use. This required research in the toxicology not only of the two main constituents, the propellant and toxicant, but also of the auxiliary materials, particularly solvents, used with them.

It is essential that this be remembered and well understood. Propelling fine particles of materials, which may be inhaled, throughout the air of the room is akin to the release of gases such as those long used in fumigation. It has long been accepted that fumigation is an art to be practiced only with appropriate safeguards and by trained individuals. The tendency to ignore this basic fact and its relation to the use of gas-propelled aerosols is disconcerting. Especially is this true where there is willingness to place undue emphasis on the results of a few tests and to think largely or entirely in terms of immediate apparent effect. Inadequate as it is, and in some cases annoying, the restraint imposed through the present system of licensing under the initial patent on the method of dispersing gas-propelled insecticidal aerosols has merit and benefit to the public and industry.

The formulas for gas-propelled insecticidal aerosols perfected during the war were all developed during a period when many materials were in short supply. Stimulated interest, popular demand for materials provided to the armed forces, as well as other factors resulted in immediate release of the same devices and materials when war ended. This natural sequence had its benefits, but it also had some serious shortcomings. It is fortunate that the last war-time aerosol formula was better than the first and a marked improvement over the second. There is still room for improvement in this formula and the device used to apply it, and we should not long continue to use even the best war-time formula as the standard of performance; the standard should be higher.

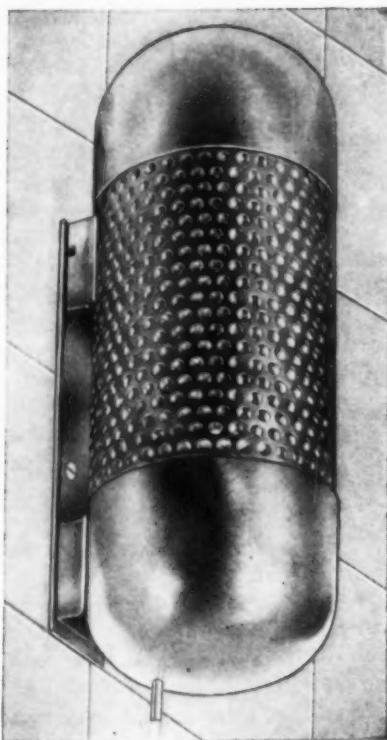
Removal of war-time requirements and restrictions has naturally introduced much new thinking into many lines of endeavor. The field of gas-propelled insecticidal aerosols is

(Turn to Page 191)

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## Fox Lake Wax Moves

Fox Lake Wax Company, Fox Lake, Illinois, has recently moved into new quarters located at the junction of U. S. Highway 12 and Route 120. J. Wentzel, secretary of the company, advises that in their new quarters, the company is fully equipped to turn out an increased production of floor waxes.

## Andresen Bill Passes House

The new proposed Federal Insecticide Act introduced by Congressman Andresen of Minnesota in the U. S. House of Representatives as H.R. 1237 passed the House on May 12th. Following passage by the House, the bill went to the Senate where it was referred to the Senate Committee on Agriculture and Forestry.

## New DDT Plant in West

Manufacture and distribution of DDT on the west coast is announced by Montrose Chemical Corporation which has begun production of the material on a large scale at its plant at Torrance, California. Distribution of the DDT in the west will be handled by Stauffer Chemical Co. through its offices at Los Angeles, San Francisco, and North Portland, Oregon. The company hopes to simplify the supply and distribution of DDT in the west through this innovation, since heretofore most DDT has been manufactured in the eastern part of the U. S.

## PII Los Angeles Meeting

Pacific Insecticide Institute held its spring meeting at the Clark Hotel, Los Angeles, on May 13th, with W. C. Morrison, chairman of the Institute, presiding. Guest speakers at the meeting were Dr. A. M. Boyce, professor of entomology and entomologist at the Citrus Experiment Station, Riverside, Calif., and Roy E. Campbell, entomologist in charge of the laboratory, Bureau of Entomology and Plant Quarantine, who presented the results

of their tests on new insecticide materials and equipment. Dr. J. N. Roney, extension entomologist at University



ALLEN B. LEMMON

of Arizona, discussed new materials tested in Arizona, and Allen B. Lemmon, Chief of the Bureau of Chemistry, California State Department of Agriculture, discussed problems of the

## Bacteriologists Meet

The 47th general meeting of the Society of American Bacteriologists was held in Philadelphia, May 13-16. Abstracts of the more than 200 technical papers prepared for the meeting appear in a program for the meeting issued by the *Journal of Bacteriology*, Baltimore, which in subsequent issues will publish the full text of most of these papers.

Among the papers presented which will be of particular interest to many of the readers of *Soap and Sanitary Chemicals* are the following:

- "The Antifungal and Antibacterial Action of Dibromosalicylaldehyde" by C. Baxter McLaughlin and John H. Brewer, Hynson, Westcott & Dunning, Inc., Baltimore.
- "Iodonium Compounds and Their Antibacterial Activity" by Louis Gershenfeld and Bernard Witlin, Philadelphia College of Pharmacy and Science, Philadelphia.
- "An Oval Tube Method for the Determination of the Bactericidal Effectiveness of Various Sterilizing Agents" by Franklin W. Barber, Robert P. Myers, and Edna K. Har-

ris, National Dairy Research Laboratories, Inc., Baltimore.

"Difficulties Involved in the Evaluation of Quaternary Ammonium Salts" by Robert A. Quisno, Milton J. Foster, and Harry L. Rubenkoenig, The William S. Merrell Co., Cincinnati.

"Physical Action of Surface-active Cations upon Bacteria" by E. W. Kivela, W. L. Mallmann, and E. S. Churchill, Michigan State College, East Lansing.

"Inhibitors for Neutralizing the Germicidal Action of Quaternary Ammonium Compounds" by George R. Weber and Luther A. Black, U. S. Public Health Service, Cincinnati.

"Some Studies on Quaternary Ammonium Compounds" by R. R. Rucker and Erling J. Ordal, University of Washington, Seattle.

"The Fungicidal Effects of the Fatty Acids on Species of Trichophyton" by Emanuel Grunberg, Hoffman-La Roche, Inc., Nutley, N. J.

"The Control of Dust-borne Organisms by the Impregnation of Textiles with a Germicidal Oil-Water Emulsion" by I. L. Schechmeister and Francis S. Greenspan, University of California, Berkeley, and The New York Hospital, N. Y. C.

"The Egg Injection Method in the Evaluation of Bactericides" by Louis Gershenfeld and Bernard Witlin, Philadelphia College of Pharmacy and Science, Philadelphia

## Maglio Joins Vestal

M. Martin Maglio was appointed chemical director of Vestal Laboratories, Inc., St. Louis manufacturers of insecticides and disinfectants on May 19th. Mr. Maglio was formerly director of the Jersey City laboratories and pilot plant operations of Advance Solvents and Chemical Corp. He was also assistant professor of Chemistry at St. John's University before assuming his new duties.

## New Home For Cornelius

Cornelius Products Company, New York, importers and producers of natural and synthetic waxes, have moved their general offices to 386 Fourth Avenue. At the new location considerably larger facilities are available to take care of the company's expansion.

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### R&H Markets Rhothane

Commercial production of dichloro - diphenyl - dichloroethane (DDD) was announced in May by Rohm & Haas Co., Philadelphia. Under the trademark of "Rhothane", this insecticide raw material was first announced by Rohm & Haas about two years ago. It is comparable to DDT in effect on insects but is only 1/18 as toxic to human beings, according to the company. The residual toxicity is said to extend for two or three months when the product is used indoors as a residual spray. Four formulations of the new product are being manufactured: "Rhothane-AD50", a dust concentrate; "Rhothane-WP50", a wettable powder; 25 per cent "Rhothane Emulsion Concentrate"; and "Rhothane-R50 Solution". The dust concentrate form is ready for blending with suitable inert diluents by dust manufacturers. The emulsion concentrate is used in both agricultural and residual action sprays, whereas the 30 per cent solution is primarily used in household fly sprays.

### Introduces New Products

Twin City Shellac Company, Brooklyn, manufacturer of floor waxes and cleaners for the jobbing trade, is introducing two new products, an industrial paste wax and "Bub-L-Up" alkali-proof floor cleaner. The industrial paste wax is packed in 30 lb. steel pails and meets government specification PW 158. The new wax is said to buff easily to high gloss and can be used on all types of floors except rubber and asphalt tile. "Bubble-Up," the new floor cleaner is packed in 5 gal. pails and 55 gal. drums and can be used on all types of floors without danger of bleeding. Further details may be obtained by writing the manufacturer or the publishers of *Soap and Sanitary Chemicals*.

### Com. Sanitation N. Y. Office

Commonwealth Sanitation Co., Pittsburgh, has opened an eastern division office at 507 Fifth Ave., New York, with Stanley Fox as managing director. The company is now prepared to offer sanitation and pest control service in Buffalo, N. Y., Erie,

Pa., Johnstown, Pa., Wheeling, W. Va., and Youngstown, Ohio, in addition to Pittsburgh and the New York area.



Ward M. Glasby, who joined Fuld Bros., Baltimore, recently as general manager, is pictured as he attended the recent convention of the National Sanitary Supply Assn. in Chicago last month. Photo courtesy Institutions Magazine.

### Exhibit at Hospital Show

Four manufacturers of sanitary chemicals participated in the trade exhibition staged during the 17th annual Tri-State Hospital Assembly in Chicago, May 5 to 7: Wyandotte Chemical Co., Wyandotte, Mich.; Midland Laboratories, Dubuque, Ia.; Vestal, Inc., St. Louis, Mo.; and Huntington Laboratories, Huntington, Ind. Products shown included germicides, disinfectants, deodorants, and detergents, suitable for hospital use. Hild Floor Machine Co., Chicago, also showed its line of floor maintenance compounds and noiseless floor machines.

### Hutchinson Elected

David Wallace Hutchinson, founder and president of D. W. Hutchinson & Co., New York manufacturers of essential oils and aromatic chemicals, was recently named chairman of the board. Wallace Hutchinson moves up from secretary to the position of president of the company. Other new officers also elected were Dr. Frederick W. Brown, vice-president in charge of research; Irving Edgar Chase, vice-president; James Lane, secretary; and George V. Cooney, assistant treasurer.

### Stanley in New Plant

Stanley Home Products Co., Westfield, Mass., have begun manufacturing operations at their new factory located in Easthampton, Mass. The new Stanley plant occupies the former building of the Boylston Cotton Mill in Easthampton and comprises 640,000 square feet of floor space. The company manufactures cleansers, polishes, other chemical specialties and brushes for direct sale to the consumer. The main office of the company remains in Westfield. Stanley Beveridge, who founded the firm sixteen years ago, is president.

### Magnolia Chem. Co.

The Magnolia Chemical Co., Jackson, Miss., manufacturer of "Fly-Cide" insecticide and "Pine-Sol" disinfectant, is the subject of an article in the May 11, 1947, issue of the *Jackson Daily News*. The concern was started in 1928 by H. A. Cole who had previously been in the retail drug business. In addition to insecticides and disinfectants a complete line of janitors' supplies is now manufactured. Sales activities are centered in the south-east, the area served extending as far west as Texas and Arkansas. The company is headed by Mr. Cole, with J. M. Buchanan as vice-president and Harry Cole as secretary-treasurer.

### Form Reinhart Chemical

Reinhart Chemical Corp. has been organized by Willard B. Reinhart, who will serve as president of the company. The new organization will specialize in the handling of coal tar chemicals, derivatives and related products of both domestic and foreign origin. Offices have been opened at 11 West 42nd St., New York. Mr. Reinhart has been identified with the sale of coal tar materials for many years, having been associated with Reilly Tar & Chemical Corp. until 1942, and from 1942 until 1945 serving as chief of the Tar Acids Unit, Chemical Bureau of the War Production Board. Recently he has been with William D. Neuberg Co. as manager of the coal tar chemicals department.



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### **Wax and Polish Group Meet**

The New York floor wax and polish manufacturers group of the National Paint, Varnish & Lacquer Association met, May 6th, at the Pennsylvania Hotel, New York. L. D. Eldot, L. Sonneborn Sons, president of the NPVLA, presided. The maintenance of higher standards of product quality and greater product acceptance by the trade and also by other trade associations were the main subjects of discussion. In this connection it was pointed out that only 30 out of 179 wax products remain on the present list of products approved by the Rubber Manufacturers' Association. Two committees were appointed to contact other trade associations concerning specifications. The committee to meet with the Rubber Manufacturers Association is made up of C. E. LaRoche, Franklin Research Co.; Joseph Green, Oil Specialties and Refining Co.; and C. Weirich, C. B. Dolge Co. On the committee selected to consult with the Asphalt Tile Institute are: V. Sinesi, A. C. Horn division of Sun Chemical Co.; Jacob Kahn, Windsor Wax Co.; and J. E. Saal, Vestal Chemical Co.

In group discussion on the carnauba wax supply situation, it was reported that stocks of some 5,000 tons still were on hand in Brazil. The price has come down rapidly in the past three weeks. A further break in carnauba wax prices carried #1 yellow to about \$1.10 a pound on May 22nd, with refined carnauba at 60c and chalky at 88c a pound.

Comments on observations made at a number of recent trade shows brought to light that the increasing number of waxing machines and applicators being introduced will probably increase the market for floor waxes and polishes.

### **Conn. PCO's Meet**

The Connecticut Pest Control Association held its ninth annual meeting and banquet at the Hotel Bond, Hartford, on April 22nd, at which time the members were addressed by H. H. Bourne, Hartford City Health Department, on sanitation and vermin extermination in Hartford. William

Buettner, secretary of the National Pest Control Association, also spoke, stressing the need for restoring public respect for the industry by eliminating the "exaggerated claims" still made by a few.

### **Lady Wax Salesman**

As far as is known, the only female wax salesman regularly covering a territory in the U. S. is Mrs. Editr Alt who works out of the Cornelius Products Co. branch office in Chicago. For the past four years, she has sold waxes in the mid-west and nobody, it seems, has ever accused her of lack of sales aggressiveness or following up a prospect closely. Her earlier business experience in her native Vienna had very little relation to her more recent success as a wax salesman. For a number of years, she was a fashion designer in Vienna, and among other things, she acted as a buying representative in that city for Macy's of New York. She came to the U. S. nine years ago and she is here to stay.

It is interesting to note that Mrs. Alt is a sister of Robert Freund, one of the partners of the Cornelius Products Co., New York. The other partner is Hans Freund, who is no relation to Robert. The son of Hans, George Freund, is also associated with the company. All have been in the wax business for some years.

### **Aid Health Education**

Assistance in creating an unusual display designed to draw the attention of public health specialists to industrial efforts in health education was requested from soap and chemical manufacturers in May by the National Publicity Council for Health and Welfare Services. The Council will compile industry-sponsored printed pieces on health themes for exhibition at the annual meeting of the American Public Health Assn. in Atlantic City, Oct. 6-10. The industry is invited to submit samples of their health programs for inclusion in the display to: National Publicity Council, 130 East 22nd St., New York 10, N. Y.

### **New Drip Machines**

Garnet Chemical Corp., Allentown, Penna., has resumed the manufacture of drip machines after a five-year war-time lapse, and is now offering a new model known as the McCurley Deodorizing Appliance, according to Samuel McCurley, president of the company. The new device for drip fluids is of heavy gauge chrome plated steel with a new type self-locking wall attachment. It is 10 inches high, four inches in diameter and carries approximately a one-month supply of standard drip fluid. It will be marketed exclusively through the trade. The company also plans to produce a line of new type heavy chrome-plated para block holders and brackets which will be announced in the near future, according to Mr. McCurley. The company is located at 919 N. Lumber St., Allentown, Penna.

### **Form Micronizer Co.**

A new subsidiary to be known as The Micronizer Company, has been formed by Freeport Sulphur Co., New York, according to an announcement by L. M. Williams, Jr., president of Freeport. The new subsidiary in turn has purchased the assets of International Pulverizing Corporation and affiliated companies, including American Pulverizing Corporation, Micronizer Processing Company, and Micronized Products, Inc. Plants will be operated at Moorestown, N. J., and Charlotte, Mich. Maurice F. Dufor, vice president and general manager of the Micronizer Company is in charge of operations. The subsidiary plant and its affiliates will grind sulfur for agricultural use, and will reduce organic insecticides such as DDT.

### **New Insecticides Bulletin**

A bulletin describing its new series of insecticides, "Tri-6," was recently released by Thompson-Hayward Chemical Co., Kansas. Other technical bulletins published by the company, entitled "Ded-Weed for Turf" and "Ded-Weed for Agriculture", are available upon request from the company.

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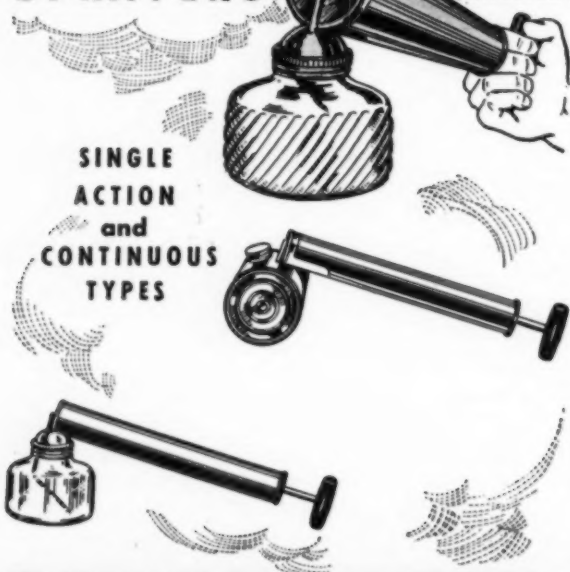
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### NSSA Credit Exchange

National Sanitary Supply Association has inaugurated a credit information exchange for members, Leo J. Kelly, executive vice president, announced last month. The new service, which will be conducted from Chicago headquarters of the organization, started May 15, following authorization by the Board of Directors at its post-convention session in April.

"Good credit is the life blood of any successful business or industry," said Mr. Kelly in announcing the new service. "Manufacturers are eager to extend credit privileges to the worthy, but frequently the dead-beat, who takes advantage of an opportunity, creates higher costs for the manufacturers by reason of losses sustained, resulting in inevitable price raises to those who pay their just bills. Accordingly our new credit exchange will benefit every member."

### MM&R Adds to Sales Staff

Magnus, Mabey & Reynard, New York, announced in May the appointment of Herbert F. Grafslund and John P. Grattan to the mid-western sales division in Chicago. Mr. Grafslund will cover the territory previously traveled by G. F. Mehren, newly appointed general manager of the mid-western area. A graduate pharmacist with several years' retail training, Mr. Grafslund was previously employed by E. R. Squibb & Sons, and later by Smith, Kline and French. Mr. Grattan previously represented MM&R in the greater New York area.

### Meinhardt Para Plant

J. A. Meinhardt & Co., sanitary specialties manufacturers, Chicago, expected by July 1 to start operations in their new plant for production of para-dichlorobenzene. Original plans called for erection of the factory at Yorkville, Ill., near Chicago, but inability to obtain a permit to use water from a river there forced the company to obtain a new site at Wyoming, Ill. Equipment, including two 100-ton presses and six chlorinators, has been provided for an output of 40,000 lbs. of para per day, Mr. Meinhardt stated.

Frank Welch, for years superintendent of Chicago operations, is being transferred to Wyoming to direct production in the new plant.



**LETHALAIRE INSECTICIDES** — The new 5-lb. "Lethalaire" portable container-applier is designed for large users. The aerosol insecticide produced by Virginia Smelting Co., West Norfolk, Va., is available in 3 formulas: one, for general use, is a DDT-Pyrethrins formula; another, a pyrethrum formula without DDT, is for use by food producers, packers, restaurants, etc.; a third is a 50 per cent DDT formula for greenhouses. Lethalaire is also available in a permanently installed Solenoid dispenser system with automatic push-button control. The system consists of a magnetic valve and electrically timed switch and a supply source of "Lethalaire" under pressure.

### Institutions Catalog

The first edition of a new annual compilation of catalogs, *Institutions Catalog Directory*, is now being distributed to over 45,000 institutions throughout the country including hospitals, hotels, restaurants, schools, colleges, industrial cafeterias and office buildings. Over 630 pages in size it has been designed to meet the information needs of those who have the responsibility for buying and specifying food, food service equipment, furniture, furnishings, maintenance supplies, construction materials, mechanical equipment and other products used in institutions. The book, priced at \$5.00, is published by *Institutions Magazine*, 1900 Prairie Ave., Chicago.

### Tragacanth Co. Moves

Tragacanth Importing Company, New York, will move its offices on July 1st to a new location at 160 Water street, New York.

### Dow Chlordane Products

Dow Chemical Co., Midland, Mich., is offering three types of Chlordane insecticides under the trade name "Dowklor". Two of the compositions, one mixed with deodorized oil and the other with water, are designed particularly for use by pest control operators, while the third form can be used as a dust concentrate or as a wettable powder for a water spray for agricultural use.

### Bacterial Warfare Report

A report summarizing the potentialities of bacterial warfare, which was written in 1942 and has been unpublished since that time because of the wartime need for secrecy, appears in the May 1947 issue of the *Journal of Immunology*. Written by Drs. Theodor Rosebury and Elvin A. Kabat, with the assistance of Dr. Martin H. Boldt, it is the most exhaustive survey of the subject yet in print, although necessarily it does not bring the subject up to date, written as it was before the many war time developments in this field. The authors indicate how bacteria and viruses might be used tactically in warfare, and list thirty-three microbes and viruses that their studies indicated might be selected for such use. This list includes botulinus toxin, leptospira, anthrax bacillus, the pneumonic plague bacillus, the influenza virus, viruses of measles, mumps and psittacosis or parrot's disease, and the bacilli which cause glanders, tularemia, etc. A major part of the report deals with measures recommended for use in the defense against bacterial attack. This includes anticipation and warning, detection and identification of bacteria and viruses, and means of control. In this latter role manufacturers of disinfectants would play an extremely important part.

### Carbide Research Center

Construction of a new research center for Carbide and Carbon Chemicals Corp. at South Charleston, W. Va., is reported under way. The new center will replace existing facilities and will eventually house the fundamental research activities of the company pertaining to new organic chemicals.



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## INSECTICIDE FUTURE

(From Page 169)

no exception. The desire to produce and market a cheaper product is a predominating influence. It was evident during the war and was a motivating factor in the interesting discussion on aerosols versus sprays that occurred the last time the N. A. I. D. M. met in Chicago. Such a goal is commendable. It is, however, not without pitfalls. A good, effective, and less costly gas-propelled insecticidal aerosol can be produced. The so-called "low-pressure" type offers the greatest promise. In fact, the know-how has already been attained. Its implementation is just around the corner. Only a few things, the most important of which is supplies, are holding its realization in check. Admitting the development, however, does not mean that it will be attained without meticulous attention to details. The low-pressure aerosol should not be confused with or degenerated into a lazy man's spray. They are not synonymous. The industry must see that they do not become so. How well the insecticide manufacturer keeps faith with the basic principle of this useful, important development in pest control time alone will disclose.

The idea of controlling insects by the use of smokes, including the addition of special toxic agents to them, is old. Devices and developments during the war, and especially the discovery of new insecticidal materials and the use of concentrated mixtures, have opened new avenues of approach. The use of heat-generated aerosols, for this is the principle involved, is far along in the developmental stage. Practical means of making and distributing such aerosols and ways of controlling particle size have been determined. How to control their application, appraise their effectiveness, and determine various conditions under which they may be used with safety are problems requiring more attention. Intriguing as some results may appear, we should not permit enthusiasm to lead to the conclusion that this method of control has been proven. I know of no case where this can be said without important reservations.

The use of concentrated toxicants and especially those effective in small amounts and for a considerable time has prompted much study of ways to distribute minute, persistent particles of insecticides by mechanical means. The small concentrate sprayer commonly referred to as the "Schroeder sprayer" is one of these. Other types are being perfected. The use of high velocity in various forms is being investigated as a means of producing aerosols, as well as applying fine particles to surfaces. The kind of toxicants to be used and the objective sought are important matters to be kept in mind. The fact that one material can be used effectively and safely does not mean the same procedure is applicable to all. Proof must be secured through adequate tests, and sometimes these require much effort and time. A willingness on the part of the insecticide manufacturer to accept an appropriate part of the responsibility for developing and sanely using facts will have an important bearing on the part such improvements will have in pest control.

### Repellents

**A**S far back as any of us remember, and indeed further, various items have been suggested and used to keep biting insects away from man, at home or afield. The standard remedies have largely been well known materials, and many had pronounced odors. A long-time favorite, oil of citronella, is a standard drug item hardly classed and seldom if ever sold as an insecticide. The need to protect our armed forces from hordes of dangerous and annoying insects, and the requirement that what was used should not be a means of attracting attention to the user, focused attention on a class of insecticides which had been largely ignored. It stimulated intensive research which discovered effective materials and combinations of materials. Their use has established a place for a new class of insecticides to provide protection to man and domestic animals.

This new field is still largely in its infancy. We may look for new developments, extended use, and recognition as a part of the insecticide in-

dustry. With its development, new problems of marketing will be encountered. New requirements will have to be met. Where the materials are intended for use on man, attention will have to be given to laws and regulations dealing with the sale and use of drugs, even if the primary purpose of the material comes within the official definition of "insecticide." Should the same material or combination repel pests from pets or livestock, the regulatory aspects of marketing may include features new to those who now produce insecticides.

With what is now known and with discoveries that are just around the corner, it is fair to assume that repellents will have an important place in the insecticide field. The character of the product may differ greatly with the condition of use. Civilians may find the more effective creams much more desirable than liquids; however, liquids may have advantages for use on animals or for application in other ways. Regardless of the character of the preparation, repellents should be a line of products developed by the insecticide industry. Their development and sale will present new problems. Much thought and care must be used, for there is still much to be learned. Mistakes and hasty action may be costly and retard development.

### To summarize

**L**OOKING ahead, I see a bright future in the field of control of household insects. How bright depends much on the insecticide manufacturer. It is the products of the industry that the public will have and use to combat the numerous pests which destroy and injure their possessions, annoy man at home and afield, and transmit diseases which reduce his efficiency or are fatal to him.

Perplexing as the present situation may be because of many new developments, I have faith that these will be used for the good of all. If they are not, much of the benefit of recent research will be lost or its use greatly delayed. The care used in appraising the value of and developing markets for new products will have significant bearing on the future. "It is better to be safe than sorry" is an



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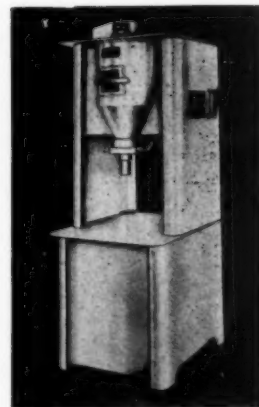
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adage we all need to remember and practice during the immediate future. To me this goes even further—into the field of advertising, ballyhoo, and exaggerated claims. With all due regard to associates in technical fields, I feel sure we will go faster and further if we avoid hobbies and see all rather than part of the picture. The same thought underlies my belief that facts, not superlatives, should be the basis of sales campaigns.

Looking ahead, it is to be expected that new materials will impinge upon and, in certain places, replace those which have been used before. To say that those now in sight will so change the field of insect control that need for insecticides will vanish, has no sound foundation. In fact, all current developments give me assurance of greater use of household insecticides in the years to come. Standard, proven insecticides and particularly some of the plant materials, such as pyrethrum, are far from being on the way out. We may use them differently, and we can all agree that the use of small quantities in large amounts of oil will largely be a matter of history. It is, however, reasonable to assume that the old well known materials will have an important place in pest control.

There are, however, things in the immediate future that are disconcerting. The intensive investigations that have been carried on with one of the newer insecticidal chemicals, DDT, have stimulated thinking in this general class of compounds. All this need not be put aside, but in exploring this and other fields care must be used not to rely too implicitly on what we know about DDT. Notwithstanding the extensive use and the clean record DDT has had so far, we must accept it as a poison. So much is known about it that there is a tendency to use it as a basis for comparison. Toxic effects of new materials are being commonly rated with those of DDT. We need to recognize that this basis is none too fixed or secure. Add to this the tendency to make combinations, and to use some of various materials of approximately the same level of toxicity to man doesn't mean the mixture will be safe. Synergism and

the effects of combinations of toxicants are accepted in insect control. We cannot justly assume other forms of animal life will not follow the same pattern.

To me all this adds up to the belief that the future of the field of household insecticides lies in the hands of those who do the research, development, educational, and sales work. If we all pursue a sound policy, recognizing and accepting only facts, credit and profits will be the reward for what is done for humanity. All this leaves plenty of room for honest initiative and competition, factors which have had important influence on our accomplishments and which are essential to democracy.

### INSECTICIDE RESIDUES

(From Page 143)

dates at which the kill is more than and again less than 50 per cent. If the unknown insecticide effects a 50 per cent kill on a testing date before the Reference Insecticide, it assumes a minus rating; if it produces a 50 per cent kill on a testing date after the Reference Insecticide, the rating will be a plus value.

So much for method. It seems only fair to conclude that while much progress has been made in evaluating residual insecticides, additional tests by cooperating laboratories will be necessary before we can consider an official method.

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## Addendum

**S**INCE the delivery of the original paper, additional data has been found and references have appeared which make the story of the use of these methods in the field more complete.

## Flea Control:—

Lewis, et. al, (1946) used DDT against the fleas in the native quarters of Dakar during an epidemic of Bubonic plague in 1944, and Kartman (1946) carried out more complete studies. The latter showed that dusting with 10% DDT—talc mixture over the floor gave a 96% reduction in the vector fleas (*Synosternus pallidus*) within two hours and that the protection (97%) persisted for 64 days (9 weeks)—when 250 mgm. of DDT was applied per square foot. Almost as good control was obtained by spraying with 5% DDT in kerosene.

In addition to the kill, the biting activities of the fleas stopped soon (5 to 13 minutes) after the application was made. Davis (1945) had previously shown that the tropical rat flea dies in 4 hours after contact with the dust, while Lindquist, Madden & Knipling (1944) had shown that the dog and cat fleas leave their hosts within 10 minutes and drop to the ground,—dying in 3-5 hours.

Ludwig & Nicholson (1945 and 1946) in a series of murine typhus control investigation reports to the USPHS obtained 98% reduction of all flea species on rats when using 10% DDT in rat runs, burrows, holes, etc. in the Southern U. S. When using a dust containing 20% ANTU, 97% control of fleas resulted with 90% control obtaining at the end of 94 days (3 months). On the basis of these field studies, the USPHS Communicable Disease Center is now using about 400,000 pounds of 10% DDT dust a month in controlling rat fleas. With this usage has gone a concomitant sharp reduction in the number of cases of murine typhus. In Savannah, Ga., e.g. only 9 cases of typhus occurred in the first nine months of 1946, compared with 75 the year before,—and none of the reported cases were from treated premises (Nicholson, Oct. 1946). Ludwig & Nicholson (1947) have given a recent formal summary of part of their work in Savannah, Ga. with operational details and analyses of results obtained. While Davis (1947) reports on a larger, complete, program for the control of murine typhus fever in San Antonio, Texas.

Ludwig & Nicholson pointed out that to control *all* the rat fleas it is necessary to treat *all* the runways. The initial control of 99.3% obtained falls off at a rate of 5% per month over the succeeding 4 month period. In the San Antonio program in which 22,000 premises were examined and 23,000 rooms treated, 3 tons of 10% DDT dust was used at a total operating cost of \$5,500 or \$0.24 per treated room. In such large scale work, Davis points out, the flea population indices after treatment are a measure of the efficiency of the crews and not a measure of the efficiency of DDT, be-

cause when DDT is thoroughly and carefully used, the number of fleas can be reduced almost to zero.

It should also be remembered that ANTU is a relatively specific rat poison, affecting only the brown or Norway rat,—but when DDT dust is used, the decrease of fleas is independent of the species of rat involved,—when full attention is paid to the habits of the rats and all their runways and harbourages treated.

The USPHS has also published a manual on the use of DDT in the control of murine typhus fever and Stage (1946) has also given details on the use of DDT in flea control.

## Use of "1080":—

Hughes (1947) shows that when used in rat control programs on ships, "1080" gives as good a kill as the standard hydrocyanic acid gas fumigation.

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"No, Cuthbert. I never heard ob dichloro-diphenyl-trichloroethane!"

## Know how...

**T**HAT'S what business and industrial publications can add to your advertising in their specialized fields—intimate knowledge of the field, deep reader interest, close reader attention—the equivalent of war-time "know how." They also give advertising a concentrated and specialized coverage not elsewhere available.

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**SOAP and Sanitary Chemicals**  
254 WEST 31st STREET NEW YORK 1

## Tale Ends

**A**FTER tallow dropped from twenty-seven cents to less than half of that figure in a month, anything can happen in oils and fats. Hold your hats, kids, here we go again!

Pat Moore, well-known Ungerer v.p. and the essential oil industry's gift to American womanhood, was at long last married on May 31. To Mrs. Moore, our deepest,—no not that,—what we meant to say is,—the best o' luck!

The late George Garnet of Allentown, Pa. was the first to use paracrystals against moths way back in 1912, says Sam McCurley of that same fair city. The late Harold Koppelman was first to market it in block form for odorizing back in 1915 when he headed U. S. Sanitary in Chicago, says George Simmonds. If you disagree, write to George or Sam, or both, and give 'em hell!

If you think that the household insecticide business has backed up on the manufacturer, you should really look into the toilet goods market. There, they say, biz is really lousy.

Edgar Queeny, Monsanto Chemical board chairman, in his special report to company stockholders and employees on the Texas City disaster, presented on behalf of American industry the finest document of its kind which we ever have been privileged to read. It full well deserves the plaudits which it received both inside and outside of the chemical industry.

Correction dept. — Last month we told about an old reader who ribbed us regularly when we misspelled the word, "bedbug," as two separate words. In so doing we inadvertently misspelled the word, "misspelled." Although we have not heard from our old "bedbug" pal about this lapse, others of our good friends have not hesitated to give us the needle. Could it be that Ol' Doc Bedbug is slipping?

